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The Pennsylvania Dairymen's Association

Organized 1925

Succeeding the following organizations:

The Crawford County Dairy Association (1871)
The Pennsylvania Dairy Association (1874)
The Pennsylvania Dairy Union (1898)
The Pennsylvania Livestock Breeders' and Dairymen's Association (1916)

REPORT

of the

NINTH ANNUAL MEETING

January 18, 1934
Harrisburg, Pa.

DR. E. S. DEUBLER, President
Penshurst Farm, Narberth, Pa.

C. R. GEARHART, Secretary-Treasurer
Dairy Building. State College, Pa.

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President's Address

DR. E. S. DEUBLER

Penhurst Farm, Narberth, Pa.

LADIES AND GENTLEMEN: We welcome you to the ninth annual meeting of our Association. While we are only nine years old our Association is the outgrowth of the Crawford County Dairy Association organized in 1871 which was followed by the Pennsylvania Dairy Association in 1874 and the Pennsylvania Dairy Union in 1898 which was merged into the Pennsylvania Livestock Breeders and Dairymen's Association in 1916, so we may call ourselves nine or sixty-three years old according to how we feel.

During the past two years dairymen have had a difficult time. Prices for our products have fallen below pre-war levels, our markets are over-supplied and some have no markets. Many have been obliged to sell below the cost of production. Few dairymen have been able to balance their budget and many have suffered severe losses.

During the past year our Federal government has taken an active part in attempting to aid the farmer. The agricultural adjustment administration was formed in the Department of Agriculture and milk codes were written and put into effect in several of the important milk sheds including the Philadelphia milk shed. This code prescribed minimum prices to be paid to the producer and also fixed prices to the consumer, but objections and protests were made by some groups and revisions of the code were and are being adopted so at the opening of 1934 none of us know what the future of the A. A. A. plan will bring forth.

Our State legislature appointed a joint committee to investigate the dairy situation in Pennsyllvania. Much testimony was presented at hearings of this committee which showed many of our farmers were receiving less than one dollar per hundred pounds for their milk, or less than the cost of production under good conditions for production. The recent extra session of the legislature passed the milk control bill providing for a milk control board of three members with broad powers to license dealers, to require reports on all angles of milk production, processing and sales and to fix prices. The bill was signed by the Governor and is now a law which becomes effective upon the appointment of the board.

We are very hopeful that a capable board will be appointed who will be able to do much good for the entire dairy industry in Pennsylvania.

This Association being State-wide has members in all branches of dairying. Some retail their own milk, others are members of cooperative milk selling organizations, some are independent. Our milk goes to markets in every city and town in the Commonwealth and some goes to other states, therefore it has been very difficult to know just

what to do to aid all of us and injure none.

Our Association has always tried to render as much service as possible. At our meetings we have had outstanding speakers, who have given us valuable information concerning many phases of our business relating chiefly to economical production, better feeding and management, better breeding, disease control and better handling of our products.

At present it seems the production end of our business has been developed better than our marketing end.

We surely can make no mistake in studying and developing every phase of economic production and none of us have yet learned all about breeding, feeding, crop production, pasture and herd management, disease control, sanitation and the handling of our products.

It is up to every man who keeps cows to study every way to lower production costs. I know no better plan than to breed and keep better cows, as higher producing disease-free cows, skillful feeding, good herd management and proper handling of milk, will help every one of us to produce a better product at a lower cost.

New facts about breeding, disease control, feeding and management are being worked out every year and the pleasure we can get from developing our herd and our product might be termed the romance of our business and since we are so short on profit we must

HERE ARE TEN GOOD REASONS FOR CHOOSING AYRSHIRES:

1. **Ayrshires Are Heaviest Producers of 4% Milk.** Tested in Dairy Herd Improvement Associations and under the Ayrshire Herd Test plan hundreds of herd records have been made, showing that under good farmer care Ayrshire herds may be depended upon to annually produce from 8,000 to 12,000 lbs. of 4% milk per cow.
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3. **Ayrshires Are the Best of Rustlers and Ideal Grazers.**
4. **Ayrshire Milk is Ideal.**
5. **Ayrshire Udders Are Shapely and Well Balanced.**
6. **Ayrshires Are Uniform in Type.**
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9. **Ayrshire Bulls Cross Well With Grade Cows.**
10. **You Will Like Ayrshires**

AND THAT ISN'T ALL

Pennsylvania Ayrshire Breeders invite you to inspect their herds now on yearly test under the rules of the Ayrshire Herd Test plan. See their herds of uniformly good cows, kept under normal breeding herd conditions, making the world's greatest five and six year herd records

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take all the pleasure we can from developing better cattle and better products and helping our neighbors to do likewise.

If we are over-producing and markets cannot be developed for all of our products, let us learn how much we should produce and how efficiently we can produce it. If we are to keep fewer cows and work a limited number of hours, let us do our bit better than before with better cows and better methods.

It is my recommendation that our Association should form a closer relationship with all other organizations whose purpose is to promote the welfare of dairying. Such organizations as the Pure Breed Associations, Cow Test and Dairy Herd Improvement Associations, our State College, Department of Agriculture and Cooperative Marketing Associations. If we can develop this cooperation to the point where our Association would be a clearing house for ideas and expression so that we are truly representative of all the dairy industry, we would have a great influence for good.

The legislature and our State officers have often asked for our recommendations. As presently organized we are in no position to act as a marketing agency but our cooperation can encourage and assist existing agencies; the Milk Control Board and the A. A. A.

As a means to secure this ideal organization I suggest our officers be selected from the various groups mentioned.

The present membership of our Association is the largest in our history, over nine hundred; more new members joined this year than ever before and this is largely due to our secretary. He has our financial affairs in good shape, with all bills paid, and while our dues are but one dollar per year, our secretary has set an example showing what a little money can do if carefully used. Our annual report was published and mailer to every member, giving reports on all the papers and talks at our last meeting and listing the 979 herds which produced over 300 pounds of fat per cow in dairy herd improvement associations in 1932:

569 Herds Produced 300 to 350 lbs. Fat, Average Per Cow

292 Herds Produced 350 to 400 lbs. Fat, Average Per Cow

118 Herds Produced Over 400 lbs. Fat, Average Per Cow

Our members are to be congratulated on this showing.

We will present ribbons again this year and list all herds in our annual report.

I wish that conditions were such that we could recommend an increase in dues so that our Association could do more for our members and provide some remuneration for our secretary.

If we will all pay our dues promptly and secure some new members, we will be helping our secretary and our Association. Let us make our Association of real value to every member and dairyman of Pennsylvania, a source of information, a power to accomplish by our cooperation, what we could not do as individuals, a help to all who are

trying to advance the welfare of dairying, all of which can be accomplished if every one will take an active interest and advise your officers of your problems, your suggestions and your desire to help.

In conclusion I thank the members for the unfailing cooperation and courtesy you have always given me and asking a continuation of this splendid support to my successor.

Golden GUERNSEYS

Producers of America's Table Milk

The product of this quality breed each year at the Pennsylvania Farm Products Show wins the majority of prizes offered. In 1934 seven of the ten gold medals, and 65% of all awards were won by Guernsey Milk.

Invest *now* in a foundation of Pure Breed Guernsey and prepare for the profitable markets being developed for their off-spring and their product.

PENNSYLVANIA GUERNSEY BREEDERS ASSOCIATION

Harrisburg, Pennsylvania

Newer Methods of Cooling Milk At the Farm

With (a) Electricity, (b) Gas Engine, (c) Ice**

JOHN E. NICHOLAS*

The Pennsylvania State College

THE PRACTICE of cooling fresh milk on the farm has existed for many years, and this generally consisted in placing the milk in the available spring or a diverted portion of a small running stream. Later, concrete troughs were built to which water was either pumped or piped by gravity. Such practices are undoubtedly still in use today. This methods of cooling is unquestionably the most inexpensive but it has the outstanding disadvantage in that in most cases it is available only during the colder months of the year. However, it is during the summer months when cooling is the most desirable and necessary.

Recent studies have shown that the most desirable temperature to which milk should be cooled is 45 degrees F. It is the maximum temperature at which there is practically no growth of bacteria[1]. Since milk is usually exposed for a varied number of hours, while awaiting transportation to the receiving station, a temperature[2] of 40 degrees F. has been recommended. In the light of these studies, it is certainly logical to conclude that the older practice of milk cooling at the farm is not adequate, if the quality of milk, as it is affected by temperature, is taken into consideration. To meet the more rigid requirements there are several methods available which make it possible to cool milk to the desired low temperatures. The refrigeration may be entirely (a) automatic if it is done electrically, (b) it may be semi-automatic if it is done by a gas engine, and (c) it may be entirely manual if either artificial or natural ice is used.

ELECTRICALLY OPERATED

Any farm milk cooler essentially consists of two parts: the cabinet and the refrigerating unit. If the electric motor supplies the power to drive the refrigerating unit, it is then in the broad sense referred to as an electric milk cooler. Fig. 1 shows one type of electrically operated farm milk cooling unit.

---

[1]Samuel C. Prescott. "Bacteria as Affected by Temperature," REFRIGERATING ENGINEERING, 23, 2, 91-96 and 102, Feb. 1932.

[2]John E. Nicholas, "How Cold Should Milk Be," THE MILK DEALER, 22, 9, 25, June 1933.

*Associate Professor, Department of Agricultural Engineering, The Pennsylvania State College, State College, Pa.

**Publication authorized by the Director of the Pennsylvania Experiment Station January 15, 1934, as Technical Paper No. 629.

SEAL-KAPS

There are two kinds of contamination—accidental by dust, dirt, contact with unclean objects; and intentional—by unscrupulous people.

Accidental contamination is by all odds the most common and affects by far the greatest number of people.

SEAL-KAPS were developed to benefit the greatest number of people.

SEAL-KAPS greatly reduce accidental contamination, because they are sanitary—they protect the pouring lip—they reseal tightly when they are replaced.

SEAL-KAPS protect milk in the home until the last drop is poured.

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Sealing Machines

In any type of cooler, the cooling tank or cabinet may be a concrete tank or a self-contained movable factory-made cabinet; whatever type is used, it should have not less than three inches of good water-proofed insulation. The tank or cabinet is filled with good clean spring water which is continually and automatically kept cold by the refrigerating unit. This cold water is the medium which quickly absorbs the heat of the fresh milk.

Gas Engine Operated

When the refrigerating unit is driven by a gas engine, we may properly refer to it as gas engine milk cooler or mechanical milk cooler.

These small gas engines, generally, use gasoline as a source of fuel. They are semi-automatic in that it is necessary to "crank" the engine to start the operation, but when the cooling water is sufficiently cold. the thermostate will stop the engine.

A gas engine operated farm milk cooling unit is shown in Figure 2. The cabinet is square and is a 4-can size. It is placed in a well-drained concrete pit, projecting 12 inches above the floor line. Sufficient space is provided on all sides so that any foreign matter which may fall into the pit can easily be removed, and what is more important, there is ample provision to apply easily a new coat of paint if and when it becomes necessary.

The refrigeration unit has the compressor and the gas engine which drives the compressor mounted on the same cast-iron base. The condenser is of the radiator type and is air cooled. A fan, mounted on the engine shaft, supplies the moving air for the condenser. The compressor and the gas engine are single cylinder, both of which are air cooled. The gasoline tank is conveniently located to the right and near the top of the gas engine. The cranking lever is spring actuated and the cranking motion is conveyed to the engine through a sprocket chain. The data obtained from the installation for a period of six months is given in Table I.

Table I. Operating data with a gas engine driven milk cooling unit. Mr. Williams Farm, June to November Inclusive, 1933

Month	Gallons of Milk cooled	Gallons of Gasoline used	Quarts of Lubricating oil
June	629	15	2
July	1139	20	4
August	964	22	2
September	842	20	2
October	906	15	2
November	652	6	1
Total	5132	98	13

The method practiced on this farm consisted in cooling the evening milk all night and the morning milk for one hour.

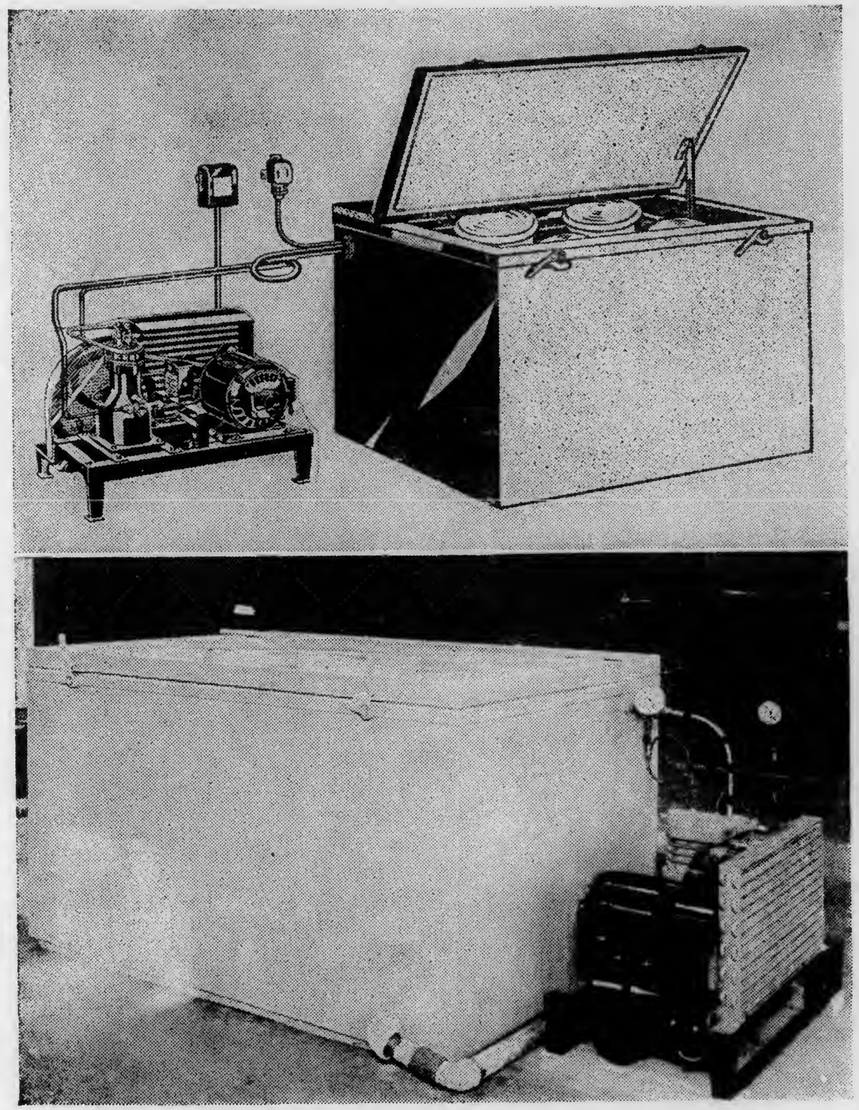

Fig. 1. Electrically operated farm milk cooling units.

Ice Method of Cooling

On many farms where some form of power is not yet available, it is feasible to use either artificial or natural ice to cool the milk. Where natural ice can be harvested, it requires some method of storage and this form of ice may be available only in very limited number of cases. Artificial ice is probably available whenever the milk producer desires it. The experimental evidence shows that it would be a great waste to cool milk with ice in such tanks which have no insulation.

A number of laboratory series of tests were made when artificial ice was used to cool the milk. A factory-made cabinet was used. It was large enough to hold six 10-gallon cans at once. However, only four cans were cooled at one time so that for each gallon of milk cooled, there were three gallons of cooling water. This cabinet was constructed of heavy galvanized sheet metal with three inches of insulation. A heavy coat of a good grade of paint on the outside was used.

It is interesting to call attention to the simple scheme which was developed in these tests with ice that took care of the excess water. Usually when the cans are in he cabinet the cooling water is high enough to submerge the cans up to the neck. The height of the cooling water should be at least one-half of an inch higher than the level

When you buy a milk-cooling cabinet, why not buy the ALL-Steel Cabinet as made by VICTOR? It will last longer, is easier to keep clean, more sanitary, well insulated; and moisture cannot filter thru the wall and rot the insulation.

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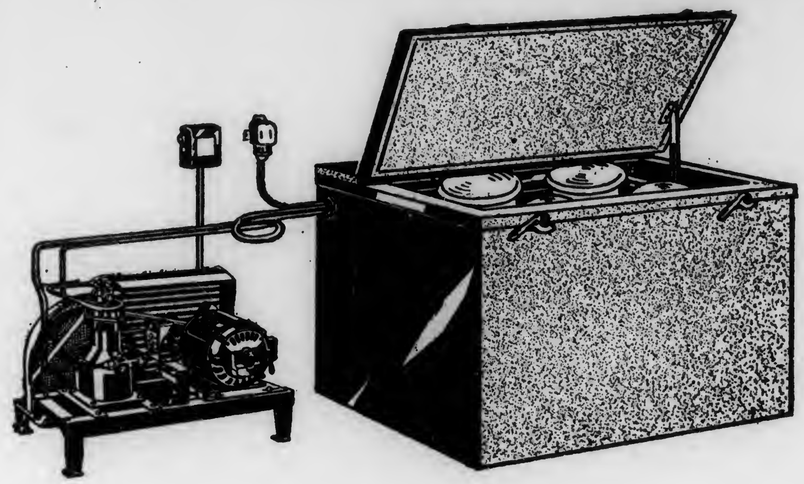

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Earns greater profits for you by cooling milk most rapidly—and most economically. Down to 50 degrees in about one hour! No aerator; cans go right into cabinet; water is kept ice cold by Frick Refrigerating Unit. Either electric or gas engine drive. Get full details. Write or phone NOW.

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of the milk in the can. Provision is generally made in the right or left front corner of the cabinet for an overflow pipe. This overflow pipe maintains a constant level when the cans are placed for cooling. On removing the cans the water level inside of the cabinet falls, depending on the size of the tank and the number of cans removed. If all of the water just used were allowed to remain in the cabinet and re-iced in preparation for the next cooling as soon as the milk cans are returned to the cabinet with fresh milk, the amount of cold water equivalent to the ice used for cooling would be lost. It would be a waste to lose this freshly cooled water which was not used. To overcome this loss, the overflow pipe should be made in two sections, so that the water which has been used during the previous cooling, can be drained just before re-icing. Such a practice will release only sufficient water which will be exactly equivalent to the amount of ice to be used. Table II indicates the result when artificial ice was used as a source of refrigeration.

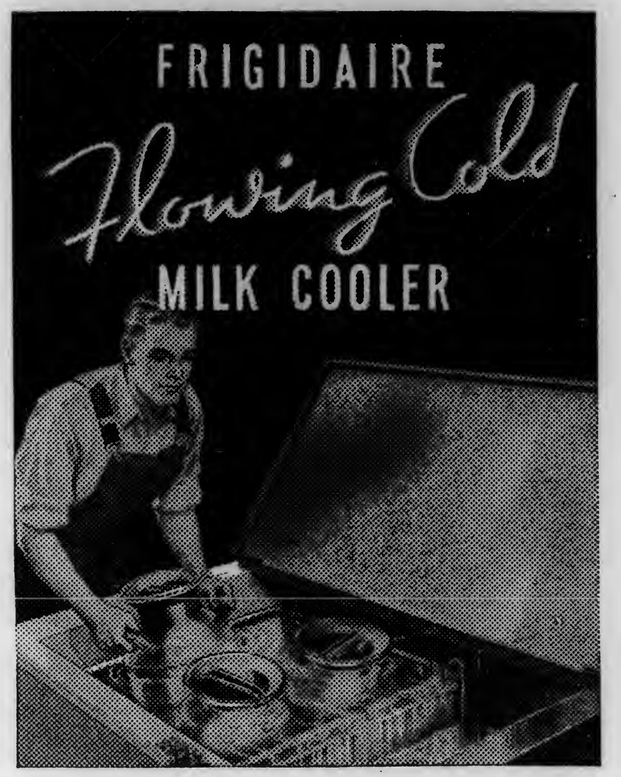
TABLE II. Cooling Milk with Ice
August 6, 1933

	Time	Temperature Water	Temperature Milk	Pounds of ice used
Milk removed	7:10 A. M.		39.5	
After milk removed	7:25 A. M.	40		
Before ice	10:25 A. M.	41		
Ice placed in tank	10:30 A. M.			251
Before milk placed in tank	4:50 P. M.	34.5		
Milk placed in tank	5:00 P. M.		95	
2 hours after	7:00 P. M.		45.5	
3 hours after	8:00 P. M.		43.0	
	August 7, 1933			
Milk removed	7:30 A. M.		42.5	
After removal	7:40 A. M.	42.0		
Before ice	10:25 A. M.	42.8		
Ice placed in tank	10:30 A. M.			244
Before milk placed in tank	5:00 P. M.	36.0		
Milk placed in tank	5:10 P. M.		95.5	
2 hours after	7:10 P. M.		46	
3 hours after	8:10 P. M.		43	
	7:30 A. M.		41	

The results shown in Table II were obtained by cooling only the evening milk. There were four 10-gallon cans cooled at once and three gallons of cooling water were used for each gallon of milk cooled.The results showed that it required 61.4 pounds of ice for each 10-gallon can of milk when cooled from 95 degrees to 40 degrees F. in a milk rouse where the average temperature was 74 degrees F.

The actual practice used in the cooling of milk with ice, especially

HERE'S THE AMAZING NEW



Cools Milk To 50° In One Hour

•

Saves Time and Money

Here's a milk cooler different from any you've ever heard of before. From one end of the cooler to the other—from bottom to top—the water flows in a constantly cold stream. An automatic water leveler keeps the water up around the necks of the cans—above the milk line—regardless of whether you put in one can of milk or as many cans as the cooler will hold.

This Frigidaire "Flowing Cold" Cooler lowers the milk temperature from body heat to below 50 degrees in an hour or so. Then the circulation stops automatically. The milk stays at the same safe temperature as long as it's in the cooler. Milk producers and dairymen everywhere have found that Frigidaire milk cooling saves money. And Frigidaire holds down bacteria count by cooling milk faster and keeping it colder.

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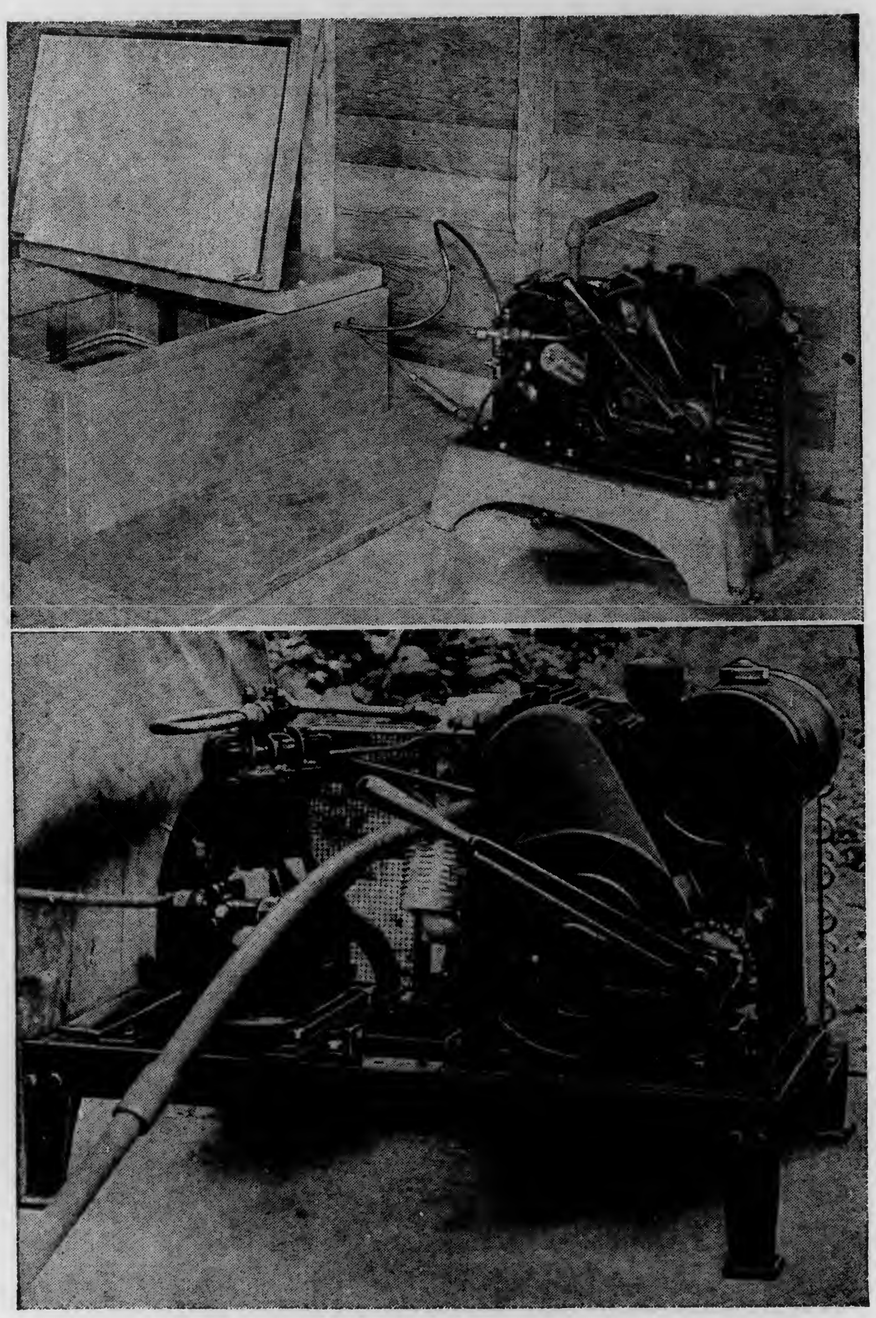

FIG. 2. GAS ENGINE OPERATED FARM MILK COOLING UNITS.

as to time, was such as might be used by a milk producer who delivers his own milk to the receiving station and brings his own ice on the return trip.

After the completion of a week's tests the cooling water was dirty so that it was considered best to replace it with clean water before additional tests were made.

RESULTS AND DISCUSSION

This paper reports tests on three possible methods of cooling milk at the farm; namely, (a) electric, (b) gas engine, and (c) ice.

An electrically operated one is automatic in all its operations. The necessary lubrication for motor or compressor should be carried out periodically as required.

The gasoline engine operated unit is semi-automatic since it requires "cranking" at least twice daily. The lubrication problem requires more attention particularly the gasoline engine.

The ice method of refrigeration requires more time and individual attention. Even with great care and practice of cleanliness, the cooling water needs more frequent changing than with the above two methods.

Economic Conditions In the Dairy Industry

F. P. WEAVER

The Pennsylvania State College

I THINK the subject as recorded on the program is "The Dairy Situation and its Future Outlook". I suppose if I were giving a topic today, I would change it little bit. I heard Governor Ritchie of Maryland say to an audience last week—"Any speech prepared one day regarding economics must be rewritten the next, because economic conditions are changing so rapidly."

What I had in mind this morning was to talk on "Economic Conditions in the Dairy Industry" and then, if any time is left, take up other phases of the New Deal, including the money policy of the Federal Government and the general economic situation in the United States, in their relation to the dairy industry. We might stay on the latter mentioned subjects too long if we take them up first and I might not get around to the dairy industry at all.

I open this first part of the talk by reading a footnote from the Journal of Political Economy—"Chicago refuses to pay a fair price for milk except under compulsion. Is it worth while to remain in a

business in which a constant struggle is necessary to maintain a fair price—in which uncertainty and turmoil are the rule? This is the question that many dairymen in the Chicago district are asking themselves."

When do you think that was written? Last week? You might think that it was a report from the Political Economy Association Meeting in Philadelphia the last week in December, but it was not. That was taken from an April 1918 issue. It was copied from a statement in the *Chicago Tribune* under the heading "What Shall We Do?" —Prairie Farmer and appeared early in 1918. Those of you who have been in the milk marketing business or dairy production business during the last twenty years, remember the milk strike which was on in Chicago in 1918. You will remember that several of the leaders of cooperative organizations of dairy producers were in jail for violating the Sherman Anti-Trust Law. Shortly before that leaders of cooperative organizations in Cleveland were arrested for conspiracy in restraint of trade, trying to organize dairy producers and regulate the sale of milk. You will also recall the terrific milk strikes on in New York, Boston and in many other cities. In other words, 1918 showed just as serious conditions in dairying as we are confronted with at the present time; just as much difference of opinion as to what the difficulty was, and as to what ought to be done to cure the trouble. At that time, I remember that lots of folks said that the reason the dairy industry was in a desperate condition was because dairy producers were not organized.

Pick up a history on cooperation in milk marketing and you will fiind that the organizations nearly all date from 1916 up to 1919 and 1920. Some changes were made in the type of organizations and methods of precedure along in 1920 and 1921, but most organizations date their organization and growth back to that period.

The thing I want to make clear at the outstart is that this is not the first time that those in the dairy industry faced conditions like they are facing now. There is a lot of difference of opinion as to what is wrong at the present time. Some think organization solved the problem back in 1918 to 1920, and that now those organizations are not serving the interests of their membership, or are inefficient and not meeting problems, and that is the reason why we have such a deplorable condition in the dairy industry.

It is true that in 1916 the dairy producers were practically unorganized but today they are the most thoroughly organized group of farmers in the east and certainly not all of these organizations can have proven false or inefficient at the same time. Yet we face again conditions similar to those in 1916 to 1919. It does not seem possible that lack of organization or lack of their functioning can be the major cause of the trouble.

Some say it is because of the depression, and naturally when a depression is on and everything goes badly we blame the depression on those in authority. People blamed Mr. Hoover when he was in office.

They said he did nothing during his entire four years. So they blamed him, snowing him under at the next election as badly as any candidate for the Presidency has ever been. These reactions are natural and absolutely unavoidable, and those who are heading organizations and shaping marketing policies are getting the blame even though they are doing everything they can.

Now I suppose when one comes to giving opinions, they should be taken with a grain of salt. Since I am making this speech, however, I have the right to give mine. I do not believe that any of those answers are the real answers as to what causes the depression in the dairy industry, and by that I do not mean to say that these factors do not contribute. I do not for a minute think that any organization is perfect and doing its job 100 percent. No doubt the depression has lessened the demand for dairy products but in 1918 the country was not in any depression.

CHART—This chart reaches back to 1800 and shows business conditions since the day when George Washington was President. (Described chart).

Business conditions were never better than in 1918 when we had the last serious trouble in the dairy industry previous to the present one. The Business Depression cannot be more than a contributory factor.

Some think the whole problem results from the general decline in prices and can be solved by monetary legislation. The black line shows the trend of the general price level all through the history of the country. You can see how prices were going in 1918 when the dairymen were calling each other all kinds of names because of conditions. Prices from 1915 to 1919 rose as rapidly as in any other period of our history. If it is not the business depression and if it isn't the lack of organization and if it is the decline in general prices just where is this "big bad wolf" in the dairy industry? I think the three mentioned factors are some of the bad wolves. I think the business depression has contributed, the decline in general prices has hurt the farmer more than others, and no doubt some mistakes have been made by the dairy cooperatives, but these are not the leaders of the pack by any means.

You have seen that chart before (see page 10 of the 1933 Report) but I want to call your attention to it again. It represents the cycle of dairy cattle prices in the United States. You will notice the tendency for dairy cow prices to reach peaks at certain periods that are approximately fourteen to sixteen years apart. The last peak was reached late in 1929 or early in 1930. The previous peak was reached about 1915, so if you take what happened in the dairy cycle from 1915 to 1920 and compare that with what has been happening since 1929, there is a much more nearly parallel case and much more logical explanation as to what is wrong with the dairy industry than any of the three factors mentioned before. Ninety per cent of what is wrong with the dairy industry is the cyclicol overproduction in dairying. It

is very important as to whether we can agree on that point before trying to figure out what might be done about it. If the trouble with the dairy industry here in the eastern part of the United States, so far as fluid milk is concerned is that we expanded the industry over a long period of years so as to lead to a practically impossible situation, that is, if our main difficulty is an upward trend of production that has gotten ahead of increased consumption, then there is a call for a certain kind of remedy. If the trouble is simply cyclical overproduction, then the situation calls for a different remedy. Let us try to see what economic conditions in the industry are and what kind of a procedure they point to.

This chart shows cows slaughtered under Federal inspection in the United States and is merely an indication of the rate of elimination of dairy cattle from herds. If you take this red line, you can see what the trend of elimination of cattle from dairy herds has been. There was a rising trend until about 1926 and a decline ever since until this year. In the middle of 1933 and every month since May, we have been killing cattle more rapidly than in 1932. It almost looks as if culling of cows from herds has begun to turn this cycle, or at least to stop this rapid downward movement, in prices. From 1926 to 1929 the prices of dairy cattle were moving in an upward trend instead of a downward trend. You can easily understand why the price of dairy cattle went down since 1929 when you see the decline in slaughter from 1926 on. May, of this year was the first time since the break in 1930, that the slaughter of cows began to increase over that for the same months in the previous year.

The next chart is one you saw last year, but I brought it up to date. It shows the number of heifers that were added to the herds. From 1923 to 1926 there were 18½ heifers per 100 cows in herds. I do not know how there could be a half a heifer, but there were 37 for each 200 cows in herds. That was stepped up to 40 for each 200 cows at the peak of the price cycle. All during this period here, even down to 1932 numbers of heifers added were above what was required for replacement. We were adding cattle to the herds above the normal rate and slaughtering at less than the normal rate. The rate we are adding now is just about normal. The last column has the figures for Pennsylvania. Back in the period from 1923 to 1926 we were adding 14 heifers to every 100 cows when cows were low in price. At the peak it went up to 18½, now down to 17. The additions to herds in Pennsylvania are still definitely above normal. You can see that they are getting down to a figure that more or less approaches normal. In other words, if you could cull heifer calves, more closely and keep only the best ones, this dairy situation would at least be in the way of correcting itself.

A few other factors are the price of milk and of cattle at these periods. This chart shows the pounds of milk required to buy a dairy cow. It took less than 3000 pounds of milk to buy a cow back in 1923 and not so many were added to the herds at that time. In 1929 it

took 5000 pounds and the heifers added under that stimulus show you why cattle prices have come way down here in 1933. This is a similar comparison, the relation between two lines shows the amount of feed that 100 pounds of milk bought at different stages of the cycles. You can see about where we stand at the present time, or up until December, 1933 in the number of pounds of feed that 100 pounds of milk would buy. Here is the relation of butter prices in this country and Great Britian together with the tariff on imported butter. The key to the situation is butter prices. The fluid milk territory is interested in butter for unless we can do something to solve the butter problem it will be impossible to maintain fluid milk prices. A certain differential between prices for milk going into fluid uses and surplus which goes into butter is sound and can be maintained but there is a limit to the size of this differential. Comparing the price of 92 score butter in New York with that of the finest New Zealand butter in London shows that the margin widened when we raised the tariff from 8 to 12 cents. When we raised from 12 to 14 cents the margin widened but closed right up again. In the first case we were in the low stage of production of the dairy cycle when domestic output was barely adequate for domestic consumption and the tariff was effective. In the latter case we were in the stage of the cycle where production was fully adequate for home use and raising the tariff to the sky could not solve the problem at this stage. I do not know that we need to put anymore time on that for I am trying to get through this part of the subject in time to allow some discussion of money policies.

This chart shows relation of payrolls to the retail price of butter and the retail price of fluid milk from 1913 to the present time. The black line is the retail price of butter. This red line shows payrolls and the broken red line fluid milk. All through the twenties, fluid milk was relatively higher in price than butter as compared to their relations back in 1913 and 1914. The margin, which held very consistently all through the twenties, has disappeared since 1929. Like comparison since 1929 shows how far butter prices have dropped in relation to what milk prices have done. Notice the very close relationship between butter prices and industrial payrolls. The depression is no doubt one of the bad wolves, but not the biggest one. The relation between butter prices and industrial payrolls is a very important point in determining a sound program for raising butter prices by the Federal Government.

This shows the relation between industrial production and building activity. This has a little application in determining what the C. W. A. may be supposed to do for dairying. On the other chart was shown how the price of butter seems to be tied up with industrial payrolls. Here we have the relationship between industrial activity, which is the black line, and building activity as indicated by contracts awarded in 36 different states. Notice how they keep closely together until we get over here to 1929, and how industrial production has been speeded up here from March to July, 1933, but building activity has kept to the same level as before. The theory back of the C. W. A.

Movement is based on the fact that it is estimated that of the 10 million unmeployed December 1 there were 5 millions who had formerly been producers of goods while the other 5 million were transporters and merchandisers of goods, etc. It is believed that if you get the 5 million back to work on construction the others would automatically find employment in providing materials for these. Eleven-twelfths of the 5 million producers had been engaged in the construction industry prior to 1929. Consequently the C. W. A. expects to put to work 4 million men formerly engaged in construction who will not be put to work quickly by private capital. In this way it is hoped to make employment for the rest and thus get the industrial machine off dead center.

Money spent by consumers for butter and cheese and how it is related to industrial production is shown by this chart. The dotted line represents industrial production. The black line money spent for butter and red line money spent for cheese. We do not have figures for 1933, consequently I could not bring the chart up any further than the end of 1932. I want to call your attention to how closely the lines keep together. Income of industrial workers seems to be key to the amount of money spent for butter and cheese. If this is true, and I see no reason to question it for these are simply statistics as they exist showing what actually happened, I think we can base some rather definite conclusions as to the value of a production control program in dairying to raise prices. If it is true that the volume of money spent for butter is constant under a fixed industrial payroll, then raising prices by selling less will not increase the gross income of the producer. In other words, if, in order to raise the price 25%, you have to reduce production 20%, how much better off are you going to be? Your gross income will be the same. Unless the income of consumers goes up, expenditures will remain the same, therefore, the higher the price, the les there is consumed. Any schme thus based on raising prices simply by reducing the volume of sales a corresponding amount, cannot increase the gross income of the produced. Any advantage to the producer from such a program must come from savings in cost of production through producing a smaller volume.

Grains—you can see how low they have been in proportion to milk prices up to 1933. No doubt this was one of the factors that helped to increase the supply of cattle even since the time that cattle prices began to decline in 1929. Butter prices were decidedly below milk prices and this margin here has been getting wider. The low butter prices have been the main disturbing element to the dairy administration. The chart is concerning the price of butter, of butterfat and the price of commodities that farmers buy. You can see there why the dairy industry was speeded up to a dangerous degree during the period up to 1932.

I think I have discussed most of the points that are pertinent to understand what the situation is and to get a fairly good idea of what it is necessary to do in trying to solve the problems of the dairy farmer. I think I will try to bring together into a few statements

what I have been trying to show you by these charts up to the present, and see how we can agree on them. In the first place, I made a statement that apparently the difficulty in the dairy industry is due to the cyclical overproduction of the present period and not to an upward trend in excess of increase in consumption. As nearly as we can get an estimate, production has declined about 1% in 1933 under 1932 and probably 1% in 1932 under 1931. Up until 1930 we had about 3% increase in consumption annually in a lot of our markets and the upward trend in production was just about the same except at certain stages of the cycle. Naturally that increase could not go on indefinitely but there should not have been an actual decline. I think that the statistics of the number of dairy cows and production of dairy products do not warrant the belief that the dairy industry as a whole is permanently above what would be a normal rate of production for domestic consumption. Consequently, it seems to me that the conditions call for a correction in the scale of production due to this stage of the cycle, or to try to do in one year what it will otherwise take from 5 to 6 years to do. A production control program that aims to curtail the scale of the dairy industry permanently as they are planning to carry out in wheat and cotton, crops of which in the past a considerable percentage was exported, that kind of adjustment is not called for in the dairy industry.

I will turn back to the dairy cycle chart. You will notice that these cycles are not 7 years down and 7 years up as some are inclined to state it, but that there is a very abrupt drop in prices for 3 or 4 years and then 5 to 7 years during which the overstocked herds are gradually reduced to normal, and even below, before any rise in cow prices takes place. Notice on the chart the three to four year rapid decline in dairy prices and then moving along the bottom of the valley for 5 to 7 years and then 4 to 5 years of rapid rise. It looks as though the number of heifers added to herds indicate that we are now down at the bottom of the steep decline but that a substantial rise in dairy cow prices is not in prospect much before 1940, if the usual forces are depended upon to adjust the cycle. If the dairy administration could do something to make this adjustment in one year instead of taking 5 or 7 years to liquidate the industry, it would look to me like a sound proceedure. I would like to ask one question. I think the facts all indicate that a rise in prices with present production is practically impossible. Are you ready for production control where the administration will tell you how much you may sell or would you rather take another 6 years of punishment? Simply buying butter cannot better our problem. Buying butter for a year and dumping it in the ocean might help. It would be much better, however, not to produce so much. Are you ready for such a program, or will you go ahead for 4 or 5 years, struggling along before you can hope for any real permanent recovery?

What solution should the government adopt? To speed up T. B. eliminations and complete that work in one year has been suggested. To get a 5 per cent reduction in production of milk would require the

killing of a million and a half cows in excess of normal slaughtering. The number of cows killed in an average year is around 4,000,000. It is estimated that 4½ million cows will be eliminated during 1934, as indicated by trend in slaughter, if nothing is done to encourage it. To get a 3% reduction in sales of dairy products, 966,000 more would have to be killed. To reduce production 5% we would have to get rid of 6 million instead of 4½ million. There are only about 600,000 tubercular cows in the infected areas. You can see that T. B. elimination is a sound step in the right direction, but that it cannot solve the problem.

It has been suggested that we put on a similar program for Bang's disease. There is not the same confidence in the test for Bang's disease as there is in the T. B. test. There is some doubt as to whether simply killing all those cows that react to a certain dilution and replacing with clean cows from other herds would improve conditions any. The necessary follow up and clean up has so far not been worked out on a basis that could be applied on such a huge scale in this short space of time.

A number of other programs have been submitted to the Dairy Division at Washington many of which would be very difficult to apply under existing conditions. Buying cows or paying a bonus on cows to get them eliminated from production has been considered seriously. If you are going to pay a bonus of $10 to $15 on 6 million cows, you need a very great deal of money. Under the present law all this money would have to be raised by a processing tax. I think the most practical proposal is that issued to the press by Secretary Wallace about a month ago, that we simply give every producer a quota and then let him reduce by any method practical for him. Say, let each producer sell 90 percent of his last year's sales. Are you ready for that program? Are you ready as individual producers for the government to regulate the industry as it deems best to do, or do you prefer to do as you please and take the consequences?

In the case of killing cows, what would you do with the meat? Feed it to the unemployed? The government has purchased 61 million pounds of butter to feed to those on relief. All the pork from the pigs and sows slaughtered under the pig reduction program are to be used for relief in order to keep it from the ordinary channels of trade and from competing with other pork. The unemployed might be pretty well fed up by this time. The beef cattle industry is in just as bad shape as the dairy industry, if not worse. We should not do anything then which would still further depress the market for beef cattle.

Q. Does the importation of cattle from other countries affect the industry?

A. It does not help solve the problem, but it is not a big factor.

Q. Is the eastern producers' control of production better than in the middle west?

A. Not to any great degree. The Philadelphia market used to

get practically all of its cream outside, now it gets about one-half. The increase in butter production from 16 to 20 per cent in the butter territory shows that they are equally, if not more guilty.

Q. Do substitutes for dairy products have any effect?

A. Total expenditures for oleomargarine are only 7% of what is spent for creamery butter. It is estimated that if no oleo had been sold in 1933 the butter price would have been 1.8 cents higher. In the twenties it would have raised butter prices 4 to 5 cents.

Monetary Policies

F. P. WEAVER

I think to understand what is back of this monetary program, we need to get a few statistical facts regarding business conditions, the gold situation and the volume of money in the country.

First, we need to understand what those in authority are trying to do and then we can understand a little better why they are going about it as they are.

See this chart—showing five prolonged business depressions through which the country has passed. This depression which lasted about 8 years goes back to the second war with Great Britian, which lasted from 1812 to 1814. The second long depression came in the thirties following the speculation in business, wildcat banking all over the country, etc. The period following the Civil War started in 1873 and ran to 1879. The next period in the nineties ran for six years. The bottom line shows the part of the present depression up to November, 1933. I think President Roosevelt is absolutely convinced that if we simply allow the ordinary processes through which we have recovered from depressions before to take their course, we have another three or four years of this ahead of us. If we could stand six to eight years of liquidation by ordinary process of foreclosure and bankruptcy, this period would work itself out by the same procedure as corrected previous depressions if we were willing to take the necessary punishment. However, this depression is so severe that there is some doubt whether the people would stand six to eight years of it without a revolution and complete overthrow of all private property rights or at least a very radical redistribution of property. A contemplation of the alternatives which probably would have been ahead may help us to have a little more sympathy with the government doing something which may not appear 100 per cent satisfactory.

Chart—This is the average sequence of the last 13 business depressions in this country. You will notice that recovery of the stock market prices preceded by 2 or 3 months, bond prices by about 4 or 5 months, but commodity prices followed 6 to 8 months after business had started to pick up. The normal way out of a depression is for rents, interest and wages to go low enough that we can bring cost of

production down to a point where we can sell goods at the low level. This means a lot of debt cancellation and unemployment as well as empty buildings to prepare for recovery. It is hoped that by raising prices artificially by government regulation and by inflation it will make recovery possible without these continued hardships.

Gold situation—This line shows the world's production of goods. The black line shows physical volume of production in the United States. Yellow line is world's gold production. If world gold production had been regulated to keep pace with the production of other things then the gold standard would constitute a satisfactory money. When you realize that from a point 40% below production of goods in 1848 we stepped gold production up to a point 3 times as high in 1851 and that it reached its peak only 3 years after gold was discovered in California and declined from that on until the nineties when the discovery of gold in '96 in Alaska and South Africa stepped production up to that peak, again about double the increase in production of goods, then you can see how badly gold production tends to stabilize prices. Due to high commodity prices during the war and a fixed price for gold, gold production fell off and we turned from the high point in 1917 to this one about 20% lower.

It is the opinion of those who have studied the gold situation that, from the outlook based on all known deposit, production cannot keep up with rise in production of physical volume of goods and commercial business transactions. The downward trend in prices which has been taking place since 1919 is due to the increased value of gold which makes a smaller amount of gold exchange for a given quantity of goods. It is the opinion of these same authorities that the same trend would continue for somewhere around 10 or 15 years. Even though we would recover from the business depression the downward trend of prices would make recovery short and followed by another depression with prices sinking lower than this time. If we insist on doing business with gold of the old standard of 23.22 grains to the dollar, it is feared that the same trouble which the country suffered during the seventies and nineties would be repeated. The gold plan of the present administration is therefore to have the dollar represent less gold and consequently buy less so that goods will exchange for more dollars and prices will be higher.

I want to show some difficulties in the way of bringing this about. Here is a chart showing the amount of gold, money and credit in this country from 1914 to 1932. This figure shows the monetary gold in this country This shows the entire amount of money in circulation while the rectangle is one-half the size of the volume of bank deposits in use.

In 1914 this country had less than 2 billion dollar of monetary gold but had 2½ billions of money in circulation and in addition had 18½ billions of bank deposits which were used as money in transacting busines. By 1920, monetary gold had increased one billion, money in circulation was almost 5 billions and deposit credit over 37 billions. With only 52% increase in gold the volume of money and

credit increased 100%.

From 1920 to 1929 there was another increase in monteary gold stocks of 50% a decrease in money in circulation of 5½%, but an increase in bank deposits of 43%. During the years from 1929 to 1932, monetary gold shrank 400 million dollars, money in circulation increased a billion dollars but bank deposits declined from over 53 millions to less than 42 millions.

To cut the weight of the gold dollar will make it possible for the same amount of gold to function as reserves for more money in circulation and this additional money can support larger bank deposits but whether it will do so depends on whether people are in a mood to borrow and whether the banks are willing to lend. You can see that money in circulation amounting to around 5 millions of dollars can not be expanded sufficiently to make up for a 12 million shrinkage in credit (the shrinkage from 1929 to 1932 was about 12 billions, but by 1933 at least 3 billion more). Successful inflation of money and credit are therefore dependent upon the state of confidence in business opportunities on the part of those who normally borrow to carry on industry and merchandising.

This is one of the difficulties under which the Federal authorities are struggling and they are trying to overcome it by raising the price of gold and thereby cheapening the money in terms of gold. Real success however requires credit expansion. The C. W. A. and public works programs require much government borrowing and are definite inflationary movements that should overcome some of this trouble. There are some who insist that the fear of inflation is retarding business recovery. That is very illogical thinking. If we were sure of inflation the only logical procedure for the individual would be to spend money and convert it into goods and other equities before it loses part of its value. Apparently there is more danger that we will not get very effective inflation rapidly than that it will get beyond control very quickly. The brakes seem to be in better shape than the self-starter.

The next chart shows prices in Great Britain and the relative stock of monetary gold in the world from 1830 to the present time. While you may get a departure in prices from what the gold supply would warrant at short periods, over a ling period of time prices have followed the available gold supply. Gold supply did not control English prices during the war, but that is due to the fact that England was off the gold standard and the line represents prices in paper money.

This chart shows movement of prices in the United States and other countries since 1924. From the latter part of 1931 on we were starting to get down below the prices of other countries. Why? Because in September, 1931, about three-fourths of the other countries went off gold, replacing it by paper money. We went off the gold standard in April, 1933.

In the next chart the solid lines show prices in two countries—

United States and Great Britian in terms of paper money.

You see what happened here when we went off the gold standard. Prices of raw materials rose to the English level. The price level at any one time depends on the price of gold in terms of the currency in use. When gold is relatively plentiful compared to other things, it takes a lot of gold to buy a given quantity of goods and prices are high. Therefore, to get higher prices when gold is scarce use paper money in which each dollar represents less gold. If gold production continues to fall behind the demand for money or behind the production of goods the adjustment would have to be repeated from time to time. That is the idea back of the commodity dollar.

It looks as though the commodity dollar were the ideal money unit if we could get all leading commercial nations of the world to go together and adopt it. If I lend one dollar today and get it back five years from now, it should be worth the same in terms of goods and services as when I lent it. Whether you borrow or whether you lend, under the commodity dollar plan, you are assured that when the time for replacement comes, the same amount of buying power will pay the debt. Why do we not fall for this plan more rapidly and more completely? Here is one of the difficulties. If one nation adopts it while other nations stay on a fixed gold standard at times when the prospects are for a declining gold supply keen-minded investors and speculators would put their investments in a foreign country. You see the inherent trouble. If much money moves out, the gold supply would decline still further and adjustment could not catch up.

Personally, I have some very grave misgivings as to whether any one nation can work out the commodity dollar and really operate it satisfactorily. I believe if Great Britian, Germany, France, Italy, Japan and the United States would adopt the commodity dollar, the rest of the world would go along because of necessity in carrying on international business.

I want to show you two more things before we adjourn. Inflation in relation to debt and in relation to the buying power of farm products. The special session of Congress voted power to the President to inflate our money so that it would have on the average a buying power in terms of gold of not less than 50% of what it had before. The President has given us this amount of assurance in his recent statement that if the time comes when we definitely fix the weight of the dollar, it will not be at more than 60% nor less than 50% of the old standard of 23.22 grains.

This chart shows farm mortgage indebtedness from 1914 to 1930, and the value per acre of the 10 leading crops in the United States over the same period. In the United States as a whole it takes 4 acres of these crops to pay interest on farm mortgages for every acre required in 1914. In Pennsylvania the mortgage debt has risen less and crop prices have fallen less so that 2 acres are required now for every acre required in 1914. One of the purposes of inflation is to make debt payment easier for the farmer as well as for others.

There is still another purpose back of inflation so far as the farmer is concerned. This next chart shows the movement of prices farmers pay for commodities which they buy in comparison with what they receive for things farmers sell. During rising prices from 1915 to 1920 the farmer's prices rose faster than those of finished goods but during declining prices the reverse is true and the farmer's products exchange for less of finished goods. It is hoped that if the general average of prices can be raised to the 1926 level, the prices of farm products and of other raw materials will rise twice as much as those of finished goods and thus restore a more equitable relationship. For the time being the N. R. A. has tended to offset this normal relation in the rate of rise of farm prices and of those of finished goods. It was not the intention of the government that this should happen but it is due more to abuse under the N. R. A. than to the original purpose of the N. R. A.

Breeding Records Essential

A. J. GLOVER
Editor, Hoard's Dairyman and *President*
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Fort Atkinson, Wis.

WHEN a breeder invests his money in a registered bull and places him at the head of his herd, he immediately becomes concerned as to the character of calves he will get. When the breeder has a good herd, he can't afford to place an untried bull at its head, but he can afford to breed a few cows to a well-bred bull for the purpose of determining what kind of inheritance he will transmit.

We know that an animal by a bull out of a good cow and by a sire out of a good cow does not always transmit the desirable characteristics of his dam and sire. Records of his daughters compared with their dams will give the information necessary for the breeder to decide whether he should be bred to all the herd.

We can sum up a breeding program this way. We need records of every female in the herd, not for one year, but for every year. This gives opportunity to eliminate the low-producing cows and to prove bulls. This does not impose a heavy expense upon the breeder, for records made under such conditions require no extra food or care other than what should be given to any herd kept for profitable production.

Let us review just a moment the work done at the Maine Experiment Station with chickens. Beginning about thirty years ago, the Maine Experiment Station started to breed poultry. Their practice was to select cockerels and pullets from the best laying hens and mate them. They continued this work for ten or fifteen years and at the

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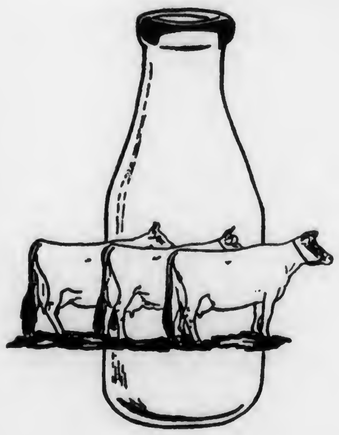


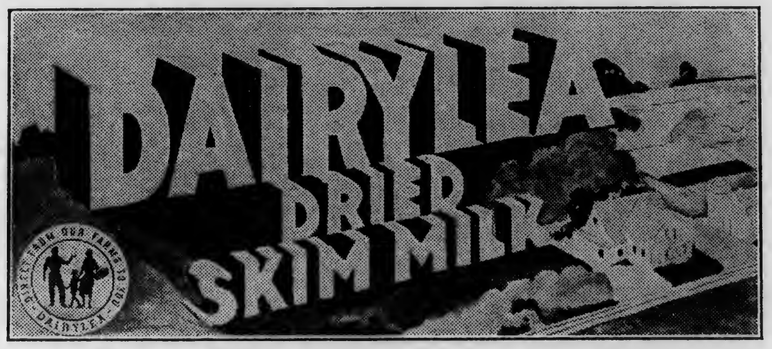
Eastern States Farmers' Exchange

Headquarters:
Springfield, Massachusetts

end of this period, the flock was producing no more eggs, if as many, than at the beginning. What was the trouble?

How forcefully this question comes and especially to those who have selected bulls upon the same basis and find themselves at the end of thirty years with no better herd than when they started. What we are all interested in is, what can be done to avoid such results?

Located near Williamstown, Massachusetts, is Mount Hope Farm. Its owner Mr. E. Parmalee Prentice has been devoting his fortune and his time to finding out ways and means of leading the breeders of dairy cattle, in fact of all kinds of live stock, into paths that will carry them upward and forward. In the breeding of poultry he has selected cockerels from good hens and pullets from good laying hens but he took one step further than the Maine Experiment Station before he mated this cockerel to his pens of breeding hens. He has found out whether that cockerel had the ability to transmit the egg producing proclivities of his dame. When Mount Hope Farm began its breeding work, the flock averaged about 160 eggs per bird per year. The average production now is 225 eegs per bird per year. The average rise has been between five and ten eggs a year, and this is for the entire flock. In other words, keeping records of this flock and testing out the cockerels before using them extensively has given them the necessary information to permit constant improvement in the egg pro-



All poultry rations should include liberal quantities of **DAIRYLEA DRIED SKIM MILK.** Also good in all rations for calves, poultry and swine. Carried by principal feed merchants throughout eastern territory.

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duction of the flock of chickens on Mount Hope Farm.

This same practice must be instituted by the breeders of dairy cattle if they are to make faster and better progress in the future than they have made in the past. This statement is made in reference to registered cattle. It is known that most registered bulls placed at the head of common herds of dairy cattle will materially improve production.

We have some things that are standing in the way that prevent our getting a true vision of our job. We have some exceptionally talented cows, many that have produced 1,000 lbs. of fat in a year. They have challenged our imagination and desire to have blood of that character in our own herds. We cannot condemn this desire, but it has led us to some wrong conclusions. In the first place we should remember that a cow with an official record of say 1,000 lbs. of fat, has invariably made that record when she was in the pink of condition and she has been carefully handled and fed for this tremendous task. No one expects that this cow will produce 1,000 lbs. of fat one year with another. Nevertheless, the desire for that kind of cow or a buy out of that kind of cow that he may be placed at the head of our herd, has been very pronounced among all breeders of all classes of dairy cattle.

When we stop to analyze just what a 1,000-lb. fat cow is, we get a somewhat changed view. Experience has shown us that one year with another, the cow's normal record will be approximately 60% of her official record. That is, if a cow has a 1,000-lb. official or semi-official record, she can be expected to produce, one year with another, 600 lbs. fat. If she has a 700-lb. fat record, she can be expected to produce 420 lbs. fat one year with another. The Ayrshire Breeders' Association recognizes this and to lead their breeders away from thinking about the 1,000-lb. fat cow and getting bulls from such cows, they have established what is known as the 100,000 Pound Club. This mean that the cow must average to produce 10,000 lbs. milk and 400 lbs. fat a year for ten years. This club calls attention to the fact that a production of 10,000 lbs. milk and 400 lbs. fat a year is splendid work and cows that do it are excellent and talented animals.

It is very unfortunate that we have misinterpreted the meaning of the 1,000-lb. fat cow. No possible objection can be raised against securing this cow. She is a noble animal. The only complaint that can be made is that we overemphasize the real measure of this 1,000-lb. record. Every one of us knows that the herd that averages 350 to 400 lbs. fat a year is an excellent, high talented herd of cattle. How many herds can any of you think of that will average more than this? Further, is our knowledge of feeding sufficient to permit us to maintain, one year with another, an average production of over 400 lbs. fat?

It is frequently said by men who have not analyzed the meaning of official records and interpreted them in terms of everyday, good production that they would not care for a bull unless this dam had an

800 to 1,000-lb. fat record. If it is pointed out that a mother has 400 lbs. fat and averaged this over a period of years and has been a regular breeder, they are not interested and are not willing to pay a reasonable price for a bull out of this kind of cow. Still such animals are among the most talented cows of the dairy herds and it is unfortunate that we do not so recognize them.

It is my opinion that our standards should be that our two-year-olds produce at least 300 lbs. fat and our mature cows, 400 lbs. What an advancement it would mean if all registered cattle were capable of averaging 300 to 400 lbs. fat per herd per year. We should be directed to increasing the production of our herds and measuring them in what the entire herd averages, rather than considering so much as we have in the past what some one or two outstanding animals have done in the herd.

To bring about this desirable situation we must keep more records. If there is any one thing that I consider of vital importance to the advancement of our cattle, it is records—not records of the few; not records of the herd for one or two years, or three, but records of every animal in the herd for every year. I feel certain that the breeder who will direct himself to testing every cow every year will be the one who will make the most progress and in ten years from now it will be his herd from which the blood is selected by other dairy farmers and breeders.

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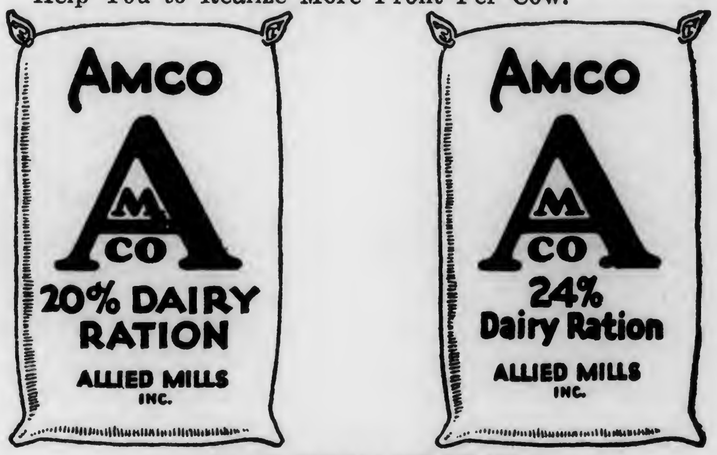

AMCO FEED SERVICE
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It has seemed to me that all tests are valuable. Even a one-day test is better than no test. A one-year test of the herd is better than none, but if we are to have dependable records for the selection of our breeding stock, it means continuous testing.

Why do we want to test? Why do we want records year after year?

Testing is done for the purpose of finding out the cow that hasn't sufficient talent to be an efficient milk producer and an efficient breeder. Cows vary a great deal in production. They have their off years. It is not uncommon to find a cow producing less than 200 lbs. fat in one year when she in her lifetime has averaged 400 lbs. fat, a most talented dairy cow. When we can have hanging over every cow in our barns the annual production, starting at two years and continuing through until the time she leaves the herd, then we will have the information essential upon which to base a judgment as to what cows should be eliminated from the herd and what cows should be kept. We will also have the information for proving our bulls—proving them good, bad or indifferent. The good bulls, of course, will be kept and their blood perpetuated.

No one with a herd of talented dairy cows kept for producing seed stock, can afford to place at the head of that herd an untried sire. He should first be proved. This may not be always possible, but we should be directed to bringing about a system of breeding, through testing, that will eliminate some of the gamble in the bull that we are to place at the head of our herd. It will be a long time, perhaps the time will never come, when there will be a sufficient number of proved bulls to head all the breeding herds in this country. We are increasing their number each year, but we need many more. It is from the proved bull that we should select the bull to be proved and especially those bred to the brood cow. It is a serious mistake for a breeder to put a large sum of money into a bull and then fail to prove him. If he has a large herd, it is a good practice to breed the young bull to eight or ten cows each year and by the time he is four years old, he should have at least three or four heifers that will show clearly the kind of type that he is capable of begetting and the dairy capacity of his daughters.

In no other way can accurate and sufficient breeding information be secured except testing—testing the dams to know their talents, testing the daughters to know theirs, and then comparing the records of the daughters with their dams. The results of comparing records of daughters will give the measure of the bull and if we could have six daughter-dam comparisions, that is, unselected, or his first six daughters, we will have a very accurate measure of what we may expect of that bull. Even three unselected daughters from different dams, will give a better foundation by far than we have been using in the past in measuring the ability of our sires to transmit the inheritance of their mothers.

It is most unfortunate that the bulls out of good cows and by good

sires which are out of good cows, do not necessarily transmit the desirable characteristics of their dams and sires. If this were true, there would be no need of testing extensively, but since it is not true, I can conceive of no other way of making sure and more rapid progress than we have made in the past except through herd improvement work.

But I can hear someone say, "This is too expensive." My answer to that is that it is too expensive not to test. If a person expects to make a success in breeding in the future, it is my deep and abiding conviction that it cannot be done without herd improvement records. I would offer no objection, in fact, I would favor making semi and official records of the most talented cow or cows when in the pink of condition, because it is stimulating and encouraging to find that we have blood in our herds capable of making 1,000 lbs. of fat in a year. There is something about these animals that helps to cheer us on our way, but let me admonish you not to overemphasize their importance in the breeding of your cattle. The records that are going to guide us intelligently in the selection and mating of our cattle will be those made under good herd conditions. They must be yearly records and we must have records on evrey cow.

One of the reasons why people hesitate to test their herds is that records of 300 to 400 lbs. fat a year seem so small. I wish I had the power to emphasize and bring to their minds more clearly what these

Important!

WEIGH THE MILK

It is most important that the record of each cow be kept—there is such a difference in the value of cows based on their production—most cows are fed practically alike—some cows are unprofitable to keep—don't guess—weigh the milk.
"Pelouze" Dairy Scales have extra large dials of genuine vitreous porcelain, acid-proof, non-corrosive and permanent—wide graduations easy to read. They have patented adjustable index pointers for obtaining tare weight of empty pail.
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Capacity
40 lbs. by tenths
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records mean. If mating together the 1,000-lb. fat cows and the bull out of a 1,000-lb. fat cow would result in 1,000-lb. fat herds, then I could not hold up the average of 300 to 400 lbs. fat a year as good. We would all be directed to getting blood of these cows, but how many of you can point to such matings that produced 1,000-lb. fat herds? We all know that when a herd gets up to 400 or 450 lbs. of fat, we are reaching the top and very few have got as high as 500 lbs. year after year. One of the reasons why year-after-year testing should be followed is to prevent feeding cows beyond their capacity. If a man tests year after year and feeds his cattle beyond their capacity to handle feed, he will soon find himself without a herd. Continuous testing will absolutely force a man to feed his cows within their capacity. Year-after-year testing will be the governor that will place our testing more nearly on a comparable basis than any testing we have ever done. This is an important reason for testing every cow in the herd every year.

A plan of this character will result in a system of making records that is the least expensive, for in herd improvement associations where men stay in them year after year, there can be no cheating that will be detrimental to the advancement of our cattle. It is the short-time test, those made for a month, that gives opportunity for misleading results.

Suppose our tests are five per cent inaccurate. What of it? The records will be none the less important for determining what cows should be sold to the butcher and which ones are worthy animals for providing seed stock and how they should be mated. We need to remember that records are made very largely for ourselves as breeders that we may intelligently eliminate the low producers, the drag of the breed; that we may prove our bulls. In no other way have we found that constant progress can be made in breeding.

I could point you to many herds of wonderful talented animals that have been ruined by the selection of one poor bull. I do not know of any greater tragedy to the breed than to find a man, who has been working hard and faithfully and has developed a herd of good producing cows, who has bought an animal which is supposed to have dairy talent but when put to the test, his daughters have shown that they produce from 100 to 200 lbs. of fat less per cow per year than the dams to which they are bred. I know of several such herds and if you people call to memory your own experiences and the experiences of your neighbors, you will also know of herds that have been ruined by a good-for-nothing bull.

Our task should be to eliminate as far as possible this gamble, to prevent as many of these tragedies happening as possible. The way open to us is records, not of one cow but of all the cows in the herd; not for one year, but for every year; not under forced conditions, but under good normal conditions. When we get this viewpoint and bring about a plan to put it into operation, then we will have a surer basis for improving the talent of our cattle.

After all, there are just two kinds of milk . . . that which makes you money and that which does not. There may be little you can do just now about increasing your milk price, but there is something you can do about getting profitable or unprofitable milk.

There is always a smile for the cow that pays for her keep and then produces enough extra milk to make money for you. There is always a scowl for the cow that fails to pay her costs. Her's is unprofitable milk. Many unprofitable cows are only a short way below the money-making line, and a good feed like Purina Cow Chow can change them from money-losers to money-makers.

PURINA MILLS

Buffalo, N. Y.

In the study of the eleven bulls used in a Southern Wisconsin herd, covering a period of over thirty years, some practical lessons in breeding have been observed. These bulls were selected by the method usually followed by good breeders and advocated by our agricultural colleges. All but one of these bulls were from dams that had good records and most of them were out of sires whose dams had good records. All the animals were invariably of good type.

Of these eleven bulls, four proved to be good and increased the production of the herd, six of them decreased the production, and one maintained production.

It is plain from the experience in the breeding of this Southern Wisconsin herd that more knowledge is necessary concerning a bull than simply records of his dam and sires's dam if progress is to be made in breeding. It is not enough either to have records and other information concerning a few close relatives. Records of as many relatives of the bull as it is possible to secure are guides, but the final test of the bull is whether he can transmit production and good type.

Another lesson taught was that a bull may have several good daughters and still be a poor bull. For example, one of the bulls in the group of eleven had among his first 26 daughters, 18 poorer than their dams and only one equalled or excelled her dam. Put in another way, 18 produced less than 300 lbs. fat, 7 between 300 to 400 lbs., and only one over 400 lbs. fat.

Another lesson drawn from the experience of this herd is that six unselected daughter-dam comparisons give a very good cross section of the breeding value of the bull, that is whether he has the ability to transmit to his offspring desirable or undesirable characteristics.

Many breeders have a deep conviction that they can determine the value of a bull by his conformation. These eleven bulls have been judged by nearly five thousand persons and no one placed them right. In fact, the poorest bull was selected either for first or second place almost unanimously. This experience emphasizes what already has become generally known, that you cannot tell by the looks of a bull what kind of progeny he will produce any more than you can tell by the looks of a frog how far he can jump.

Much has been written about nicking, that is, the ability of a sire to produce better progeny when mated with certain cows than when mated with other cows. The records of this Southern Wisconsin herd do not reveal that a bull will nick better with the daughters of one bull than he will with another. Certan geneticists believe that bulls will nick better with some cows than with others. The same theory is entertained by many practical breeders and perhaps it has foundation. We have what may be termed the brood cow, an animal capable of transmitting her good inheritance to her progeny. When this kind of cow is mated with a good bull, their progeny are more likely to be the kind that we are seeking in breeding than when the bull is mated with cows that may not, to the extent of the brood cow, transmit their good inheritance.

The state of Pennsylvania has a number of proved bulls, and R. R. Welch, dairy specialist of the Division of Extension, Pennsylvania State College, makes this statement about them: "We have information on more than one hundred proved bulls and I do not recall an instance in which a bull was proved to be good in one herd and and not in another. For instance, Bell Farm Chieftain, a Holstein bull, was proved by dam-daughter comparisons from four different herds, and of course the bull was used in all four herds. We have twenty-three daughter-dam comparisons on this bull and in every case the daughters' records are better than their dams'. A Jersey bull Sophie 19th Victor 13th, has been used in at least fifteen different herds and in every case where we have records on dams and daughters, he has greatly increased production. The association that used this bull ten years ago is anxious to use him again."

The evidence accumulated in Pennsylvania and elsewhere that if a bull is proved to be a good breeder in one herd he will also be a good breeder in other herds, should assure those desiring to prove bulls to proceed with confidence. This might, however, be added, that a bull proved to be good in a herd averaging from 250 to 300 lbs. butterfat but producing daughters that will average 325 lbs. fat, perhaps would not be the bull to select to breed to a herd averaging 375 lbs. fat. From this standpoint a bull that might be good in one herd would not be the right bull to select for another.

Let me give you an example as to how a poor bull can ruin a good herd. A certain herd owner paid $4,500 for a bull. His first crops of daughters—thirty in number—were all poorer than their dams with the exception of four. All the records were made on a semi-official basis, the thirty daughters averaging 448 lbs. fat, calculated to maturity. The dams averaged 561 lbs. fat. In other words, this bull reduced the production of the herd an average of 87 lbs. fat per cow. This sire's Mount Hope Index on a semi-official basis is 335 lbs. fat. If we reduce this to common herd records, made on twice-a-day milking, his index would be about 200 lbs. fat. This is a pretty poor kind of bull and we cannot hope to make progress with such animals.

Here is another bull of the same breed. Of his first twenty daughters, nineteen were better than their dams, only one produced slightly less fat. In herd improvement work where the animals are milked twice a day, the daughters averaged 381 lbs. fat, dams 315 lbs. In other words, the daughters produced an average of 76 lbs. fat more than their dams. The Mount Hope Index on this bull is 447 lbs. fat. There is a great difference between the bull that will beget 200-lb. fat daughters and the one that will beget 447-lb. fat daughters.

Let us remember the Maine Experiment with poultry when they mated cockerels from the best producing hens to pullets from the best producing hens that they made no progress in breeding, no increase in egg production. At Mount Hope Farm where the cockerels are proved before mating them to large numbers of hens a constant im-

provement in egg production has been made. We have many breeders in our ranks who are testing all their cows, who are proving their bulls, but I am anxious that more breeders become members of Herd Improvement Associations. The day is coming when there will be a large demand for bulls out of proved sires and we can expect better prices for such animals than have been received in the past.

The Owner's Duty and Responsibilities In the Prevention and Control of Transmissible Diseases In His Herd

T. E. MUNCE

Director, Pennsylvania Bureau of Animal Industry

THE PURPOSE of this paper is to call to the attention of livestock owners, the importance of prevention and control of transmissible animal diseases and their responsibilities in connection therewith.

I shall ask some questions:

First: Are the vast majority of dairymen in the business only to earn a livelihood or are they in the business primarily to get as much financial return as possible out of their business?

Second: Are healthy cattle more economically maintained than diseased cattle and will they give a greater financial return?

Third: If the answers to the two questions mentioned are "Yes", then is it not fundamental and to the interest of each and every dairyman to manage his herd so as to contribute to the health of his herd?

In establishing and maintaining a healthy herd, three different necessary agencies should participate; the owner, the practicing veterinarian and the Bureau of Animal Industry.

My remarks will be confined largely to the owner because of the very important position he occupies and the responsibilities he must assume in order that his herd may be maintained on a healthy basis. Many owners do not understand that others cannot satisfactorily substitute for them; or they do understand and fully appreciate the essentials and necessity of disease prevention and control and are unwilling to perform fully their part of the cooperative work. I am not unmindful of the shortcomings of the other agencies and I can assure you that we have been alert in an endeavor to have them corrected.

It is not possible to have an animal with a transmissible disease without the presence of the germ or virus which causes the disease.

A susceptible animal must come into contact with disease producing organisms before it becomes infected with a specific disease. Therefore, an infectious disease is not a spontaneous thing. It does not just occur anywhere. It must and does have a specific cause. If more owners recognized this, their herd losses would be materially reduced and the control of transmissible diseases would be less of a problem.

Diseases are transmitted from herd to herd or spread within a herd through the diseased animal, although disease may be spread through other avenues, most of which can be prevented.

The owner who has the herd under his constant care and observation is in a better position than anyone else to observe what takes place and it is his duty to see that all necessary health safeguards of his herd are rigidly enforced.

The State livestock sanitary official cooperates with the local practicing veterinarian to make indicated recommendations, furnish the proper advice and carry out the technical procedures necessary in the diagnosis, prevention, and control of transmissible diseases. It remains for the owner to carry out what is thus prescribed. The owner has an exceedingly important part and a responsibility in order for the disease prevention and control work to become successful. Any owner who is not prepared or is not sufficiently interested to faithfully carry out his part of this joint arrangement need not expect satisfactory results in the establishment and maintenance of his herd on a healthy basis. The owner of a herd or the manager by the owner's direction, is in a position to carry out the following, which come under good herd management and are indispensable to a healthy herd:

1. Sanitary measures.
2. The keeping of accurate herd, including breeding and health, records.
3. Disease preventive measures.

The keeping of accurate breeding and health records is indispensable in the control of communicable diseases. The owner or manager of a herd is the only capable one to keep such records. The attending veterinarian or regulatory official is not in position to do so. The failure of owners to have accessible accurate breeding and health records is one of the most troublesome problems with which the sanitary officials have to contend.

Sanitation is another important phase of disease prevention and control over which the owner has jurisdiction. Measures that will prevent the introduction or propagation of diseases in the herd are vital to maintaining a herd on a profitable healthy basis.

No animals from outside sources should be introduced into the herd except where the owner has inquired into and is certain that the herd from which the added animal originated is free from a transmissible disease. Even then, it is safer to keep the purchased animal

away for a period from the herd to which it is intended as an addition, where this can be done. The owner can inquire into and satisfy himself that the herd out of which he buys is healthy and also require the seller to furnish an official certificate of health for the acquired animal. This is very important and in many herds if practised would have saved much trouble and expense; in some cases the health of the entire herd.

More appreciation should be given to the fact that as the dairy industry develops, so do those factors of disease develop which tend to make dairying a specialized business. The successful dairyman today must be alert and observing of those things that tend to make his industry insecure. The by-phrase of today is that we are living in a specialized aged. There is considerable truth to this statement and it is likewise true that we are dealing with a dairy industry that is more centralized. Then too, as our country becomes older, the soil and farm premises becomes more and more poluted with disease producing bacteria, where disease has existed. Moreover, we are constantly being confronted with the danger of having introduced, diseases from foreign countries which do not exist in our country. With this centralization along with the increasing disease and other endangering hazards, come more and more the problems that make it difficult for the industry to thrive without concerted effort on the part of all interested agencies.

I could not conceive of an industry surviving without being founded upon those things that science has proved to us as essential for its success. I refer particularly to the need for having a dairy industry free from disease because disease is recognized as the one factor alone that is capable of converting what may otherwise be a profitable industry into one which becomes unprofitable.

There has always been a question in the minds of those who have been aggressively interested in establishing a dairy industry on a healthy foundation as to what appreciation the industry has for that tremendous investment paid to the industry for health by the respective national and state governments. As you know, it has amounted to many millions of dollars, and is certainly worthy of protection. How much better our industry would be if all livestock owners had an appreciation of this fact.

It is natural for us to have confidence in our fellowman. Permit me to ask you to be cautious in the purchase of animals for addition to your herd. We still have owners and dealers whose overzealousness to make a sale permits them to become elastic in statements with reference to health. The over-confident or thoughtless will frequently make a purchase on such advice without consulting the proper livestock officials for information regarding health. Too frequently by doing so, infection is introduced and the results will oftimes prove financially disastrous.

Any owner desiring information respecting the health status of any herd in which he is considering the purchase of cattle, can get

this information from the Bureau of Animal Industry.

Dairymen, cattle dealers and others who are truly interested in promoting the dairy industry along sound and profitable lines, depend too much on laws and regulations to protect the health of their herds. While adequate laws and regulations are necessary to take care of those who are prone to dishonest or sharp practices, the informed and conscientious owner himself is the best law enforcement officer insofar as the health of his own herd is concerned. The tendency in recent years has been to look to the State or Federal governments to more and more extend free service in controlling diseases. It should be remembered that such services are financed by public taxation. Practically all sound thinking citizens want to see taxes reduced. Well, you cannot have free public services extended and at the same time reduce taxes.

Governmental functions should be along educational, supervisory and regulatory lines. These agencies should study, devise and promulgate the best plans and procedures for preventing and controlling diseases. The owners with the assistance of the local practicing veterinarians should apply the plans to carry out the procedures.

The owner has sole jurisdiction over his herd and is in a better position than any other person to place and keep his herd on a healthy basis. He is directly and adversely affected in proportion to his failure to carry out proper health control measures. The owner cannot, justly nor should he attempt to, shift his duties and responsibilities to others.

Not until recently have those persons interested in the development of the dairy business, recognized or if they did, little mention was made of it, the importance of health in relation to the success of the industry. Their talks, teachings and writings have been confided mostly to breeding, feeding, production and marketing; they have attached but little importance to health. In reality, health is the very foundation of a successful cattle breeding, feeding and production program. I would not have you think, however, that I do not recognize the importance of improving conditions incident to breeding, feeding, production and marketing. All four are of great importance to a successful dairy industry but are no less essential to the health of the herd. It is gratifying to see the increased attention that is now being given to the health of herds by those who have heretofore ignored it.

Our casual observance would indicate that the successful dairyman carries out uniform practices. Strange as it may seem, were we to study in cross section, 50 or more of the most successful dairymen in Pennsylvania, we would find that they lay particular importance upon health. They would not think of adding an animal to their herd though it has merited production with an ancestry or pedigree that was highly desirable were it not qualified to enter the herd with proper health credentials. The average livestock owner should consider health, the herd's largest investment. It would be folly to

jeopardize a ten, fifteen, or more thousand dollar investment for the mere price of one unhealthy cow.

So frequently we come in contact with that herd owner who appreciates the value of disease-free livestock who is dealing with a disease problem in his particular herd. Suggestions to him that would eliminate the disease and help him to establish a disease-free herd are responded to by the statement that he can't do it. He is the type of owner who desired a disease-free herd but who is willing to do but little toward establishing one. There is the other type of herd owner whose perseverance in eliminating and preventing disease though confronted with many obstacles "is a credit to the industry". His program has been entirely thought out; he has a goal which he desires to attain and persistently carries out those practices of management that will eventually produce results. This type of owner makes the successful dairyman of the future.

Too frequently owners are heard to say, "I cannot afford it", or "There is no need to do the things recommended for establishing and keeping herds free of disease". When we consider the tremendous losses, including financial, the wiping out of valuable breeding and milking blood lines and to human health, such statements are most discouraging, coming as they do from those who for years have had afforded them the educational and other advantages for the improving and up-building of their herds of cattle.

Most dairymen have all of their worldly possessions invested in their cattle and equipment. One dairyman told me personally that all he had in this world was in his farm and dairy. Would it not seem, therefore, that it behooves such people to do their utmost to protect their cattle against disease? We cannot do this for them. We are only representatives of an agency primarily interested in the health of livestock. We cannot assume the same rule in its protection as can the owner assume in his everyday activities nor it is intended that we should were it possible. Therefore, it is the owner who must play the important role and it is our part to advise, assist and be generally helpful.

In closing I urge upon each dairyman the following eight-point health program:

1. Consider the health of your herd as being equal, of not of more in importance to breeding, production and marketing.
2. Familiarize yourself with and utilize the official plans and procedures developed for preventing and controlling communicable diseases of cattle.
3. Have the health of herd determined and all diseased cattle promptly removed.
4. Clean and disinfect thoroughly the premises occupied by the diseased cattle and frequently thereafter.
5. Carry out diligently proper sanitary an dstrict disease preventive measures.

6. Install a good system for keeping accurate health and breeding records.
7. Keep in close touch with your veterinarian and the District Agent-in-Charge for the B. A. I. to the end that they will be in better position to help you.
8. Depend more upon yourself in keeping your herd free of disease.

For detailed advice concerning the foregoing points, consult the Bureau of Animal Industry, Harrisburg, Pa.

I cannot over-emphasize the importance of these eight points. All of them are fundamental to the establishing and maintaining of a healthy herd of cattle. As was truthfully stated, "A mere increase in knowledge is not enough to safeguard health and prevent disease; the knowledge must be understood, accepted and practiced by the people."

I am hopeful that these remarks will be received by you in the same helpful spirit in which I have made them. Furthermore, I am hopeful that the great and indispensable dairy industry of Pennsylvania, the success of which you and I are both so intensely interested in, will soon be lifted out of his prolonged depression and be placed on a profitable basis. In working this out, however, I appeal to all those who in the past have neglected the health of their cattle, including adequate sanitary and disease preventive measurs, to now give proper attention to these important subjects.

Speech Delivered to the Pennsylvania Dairymen's Association Jan. 18, 1934

LOUIS MCL. MERRYMAN
Washington, D. C.

THE QUESTION of the present overproduction of dairy products is one of great interest to the whole country. This overproduction is caused by various factors.

One fundamental fact is that, as the price of labor goes down, the consumption of dairy products is decreased and the cost of production, half of which (especially of fluid milk) is labor, is likewise decreased.

Strict sanitary regulations and the base surplus plan have held production down in the fluid milk area and the high cost of feed and other factors have further reduced production. On the other hand the low price of all cattle, particularly low type of canner cows, has greatly curtailed culling of low producers in the last few years. New York State's Bang Rule has prevented importation of western cattle.

Third class milk, produced in the East by farmers who are struggling to meet taxes and interest charges, often on mortgaged cows, has also added to the surplus butter produced by the Central and North Central Dairy areas.

The fall in the price of grain and beef with lower cost of labor have brought new areas into dairy production.

Good roads and the hauling of milk by trucks are other contributing factors.

The marketing agreements set up to reduce production in the fluid milk areas and to increase returns to dairymen have widened the difference in price between the butter producers and the fluid milk producers; the purchase of butter by the Government held off the evil day for a while but it is now on us. Butter has reached a point that means bankruptcy to produce it, but the farmer with mortgaged cows in mortgaged barns on mortgaged farms continues to produce, because he has no other cash crop and his cow is practically unsaleable, often mortgaged for twice her present worth.

Many plans of production have been offered. One is an increased drive for consumption and all agreements have an advertising fund set up. Medical boards and dieticians in general recommend greater use of milk and a national advertising campaign should increase consumption, especially as wages increase and the National Recovery Act and the Civil Works Act have already made it possible for the housewife to increase her budget.

It has been suggested that part of a process tax, if put on, be used for this purpose, if constitutional. There is also a question about the Government helping any special industry when such help may interfere with other industries.

Increasing the fat content of milk and butter sold has been suggested but that has its limitations. Suggestions have also been made to eliminate oleomargarine and the importation of foreign oils for its manufacture.

Various methods of production control have been suggested other than the basic-surplus plan. A basic-allotment plan has many advocates where each farm would be given a basic amount of milk that could be sold from the farm. There are many things to be said in favor of this plan, the main difficulty being administration, first in setting up equitable bases and second that of enforcement. Another plan is to set bases 10 to 15% below the production of 1932-1933 and pay premium for the milk not produced, money to come from a process tax. This has the same merits and objections as the basic-allotment plan.

Reduction of production without the slaughtering of cows is advocated in various ways. A bonus on heifer calves vealed would use much milk, drying cows off early, feeding less grain, using more pasture on the farm are some of these.

There are several methods of slaughter suggested with a bonus

paid on slaughtered cows above current beef price. The bonus on cull cows in general has the objection that each year there are about 3,500,000 cows slaughtered anyhow and it would be extremely difficult to avoid paying for them under any cull plan. Another is that the killing of low producers is a very slow way of reducing production.

Increased activity in T. B. testing seems very sound and has many friends and few objectors, except that some dairymen in modified accredited areas object to money being appropriated for T. B. elimination, unless a conpensating amount be allotted to their states for Bang elimination.

There are supposed to be about 600,000 T. B. cattle in America, of which at least 400,000 would be milking cows. If all were eliminated, we would have done little to affect an overproduction of 10-15% of 25,500,000 cows.

The agglutination test for Bang's disease has been advocated. The only objection to this is the fact that while it is perfectly possible to eliminate the disease by the test-and-slaughter method, tests should be made every 90 days until all infection has been removd. Some states have no facilities for a follow-up campaign, and only one (Virginia) has even additional state indemnity (considered). However, the agglutination test can be applied for twenty-five cents per test, and if a maximum indemnity of $20.00 were allowed, many herds, especially in the North Central butter-producing areas, would be tested.

In the Albermarle County Dairymen's Association, Charlottesville, Virginia, 22 shippers to the Monticello Dairy agreed on a voluntary tax of one cent per hundred on milk to eradicate Bang's disease, 86 cows out of about 800 were slaughtered and indemnities of $1,200 paid and the herds are now clean.

This opens up an interesting suggestion to members of eastern producers' organizations. Where $20.00 indemnity would not induce many members to sign up for the test if the amount were doubled by the Association and $40 paid for reactors, which with salvage would net about $50, half the number removed could be replaced with the very best grades for an average of $100. This would increase importation of heavy producers into the fluid milk areas from the butter areas and would further reduce the surplus, besides spreading out the Government money.

An objection to any slaughter plan is the present surplus of beef in the country. The welfare could use some of this. There is now much horse meat used for dog biscuit and for the fur farms in the country (there are over 40,000 foxes in Wisconsin alone).

Increased facilities for canning beef would also help.

ANNUAL BUSINESS MEETING

The annual business meeting was held January 18, 1934 in Room F, State Show building, Harrisburg, Pennsylvania, President Dr. E. S. Deubler, presided.

The minutes of the preceding meeting were read and approved.

The Treasurer's report, showing a balance of $224.68 was given and accepted. The Treasurer's accounts were audited by Wilbur F. Barkdoll, R. H. Olmstead, and A. A. Raudabaugh.

The $244.68 includes the banquet reserve of $53.20. There are also several outstanding bills in connection with the 1934 annual meeting amounting to approximately $95.00, with these amounts deducted the balance in the treasury at the close of the 1934 meeting and banquet would approximate $76.48.

Officers elected for the ensuing year are as follows:

President—Dr. L. M. Thompson.....Montrose, Pa.
First Vice-President—Warren Whittier....Douglasville, Pa.
Second Vice-President—Ray Williams..New Centerville, Pa.
Third Vice-President—Mrs. E. R. Fritsche..Douglasville, Pa.
Secretary-Treasurer—C. R. Gearhart.....State College, Pa.
Assistant Secretary—F. M. Twining.....Philadellphia, Pa.

There was an educational meeting preceding and following the business meeting, which is included in this report.

The following resolutions were adopted on the recommendation of the resolutions committee, Warren F. Whittier, Raymond B. Arnold, Emil Oleson, E. B. Fitts.

RESOLUTIONS—1934

APPOINTMENT OF MILK CONTROL BOARD

To the Hon. Gifford Pinchot,
Governor of the Commonwealth of Pennsylvania:

WHEREAS, the dairymen of Pennsylvania are most vitally interested in the economic problems to be considered by the Milk Control Board to be appointed by your Excellency, and realizing the necessity of harmonious and united action for the successful solution of these prbolems.

We, the Pennsylvania Dairymen's Association respectfully petition your Excellency that in the appointments to the Milk Control Board that no one be appointed who has been actively connected with either faction in the recent controversy between the Inter-State Milk

Producers' Association and the Allied Dairy Farmers' Association.

(This resolution was telegraphed to the Hon. Gifford Pinchot in New York City).

FEDERAL COMMISSION TO STUDY BANG'S DISEASE

WHEREAS, Bang's Disease (contagious abortion) in cattle is one of the greatest sources of economic loss to the dairymen and cattle breeders of the United States, and

WHEREAS, there is a wide variaiton in the regulations of the various State livestock sanitary boards on the subject of the control of Bang's disease.

WHEREAS, this lack of uniformity of regulations results in a confusion of inter-tate shipping regulations acting to the detriment of many breeders of cattle.

THEREFORE BE IT RESOLVED that the Pennsylvania Dairymen's Association in annual meeting assembled this the 18th day of January, 1934, does hereby recommend to the United States Secretary of Agriculture that a Federal Commission for the Study of Bang's Disease be appointed as a part of the reconstruction program and that Federal funds be allocated for a full and complete study of Bang's Disease from the standpoint of uniform regulations and a rational method of control.

"No Guesswork"
Say Dairymen

A measuring spoon in every can of H T H-15 makes it easy for dairymen and milk producers to use this dependable sterilizer with accuracy. Quick-acting sterilizing solutions safe and easy to use on all kinds of milk equipment, are prepared by simply adding the dry H T H-15 powder to water by the spoonful.

One 3-lb. can of H T H-15 makes 250 to 500 gallons of effective hypochlorite rinse solution at a cost as low as 1/5 cent per gallon. In the new 1-lb. can, H T H-15 is within the reach of producers who insist on low first cost.

A request on your letterhead will bring you a ¼-pound sample can of H T H-15 free. Write for it today.

The Mathieson Alkali Works (Inc.)
250 Park Avenue, New York, N. Y.

STUDY OF BANG'S DISEASE IN PENNSYLVANIA

We, the undersigned members of a committee representing the Ayrshire, Guernsey, Jersey and Holstein State Associations of Pennsylvania, respectfully request that you have sponsored in the next session of the General Assembly of this State a resolution designed to carry out the provisions of the following resolution:

WHEREAS, bovine contagious abortion (Bang's disease) a disease of cattle caused by infection with the bacillus Brucells Abortus, is widely prevalent throughout the State of Pennsylvania, and

WHEREAS, this disease causes directly the loss of millions of dollars annually to the milk producers and cattle breeders of this State and, through its causing undulant fever in human beings, is a menace to the health of the people of Pennsylvania, and

WHEREAS, the cause of bovine contagious abortion is known and also the means of its diagnosis by the agglutination and other tests, as well as the measures whereby it can be controlled and eradicated, and

WHEREAS, the existing State Laws and Regulations bearing on this disease are inadequate in that (among other deficiencies) they do not include a contagious abortion survey (blood test) of all herds and cattle in the State, nor any periodical blood test of all herds and cattle in the State, and *do* permit the free movement within the State of infected cattle from untested herds, and do rely upon *voluntary* joining of the so-called "State Plan" on the part of herd owners, and

WHEREAS, the methods now in force in this State for the control of contagious abortion do not, in fact control it, and do not and cannot give any promise whatever of eradicating it from the State within a measurable and reasonable period of years, and

WHEREAS, the control and much more, the elimination of this disease is an economic-social-medical problem of the greatest importance and is as complicated and difficult as it is important, requiring the most careful and intelligent study of all its ramifications before appropriate legislation looking to its immediate control and eventual eradication, can be drafted, therefore be it

RESOLVED that the State Secretary of Agriculture is hereby petitioned to have sponsored a resolution in the General Assembly of Pennsylvania to have appointed a joint committee of the Senate and House to study thoroughly this problem from all angles, including its economic, legislative, social and medical aspects and to recommend State legislative specifically framed and designed to check effectively and to eradicate entirely bovine contagious abortion in Pennsylvania, within a measurable and reasonable period of years; and to provide an adequate appropriation to finance this committee in carrying out the provisions of this Resolution.

BANG'S DISEASE TEST FOR IMPORTED CATTLE

WHEREAS, several breed organizations in this State, at their annual meetings in 1933 offered resolutions requesting the Pennsylvania Bureau of Animal Industry to establish additional regulations governing the importation of cattle into Pennsylvania to exclude Bang's Disease, and

WHEREAS, up to the present time no action has been taken, and

WHEREAS, most of the breed organizations have passed similar resolutions this year,

We, the Pennsylvania Dairymen's Association, in annual meeting assembled do still deem a more rigid regulation necessary for the protection of our industry, and therefore submit the following resolution:

BE IT RESOLVED that all cattle imported into the State for milk or breeding purposes, shall after passing a negative test to Bang's Disease before importation be also quarantined for a period of thirty days, or until twenty-one days after freshening, and then before being released, they shall pass a negative test to Bang's Disease under the supervision of the Pennsylvania Bureau of Animal Industry.

FARM SHOW BUILDING

WHEREAS, the Livestock Department of the State Farm Show is definitely handicapped by the inadequacy of space, both as to stabling and exhibition arena, and

WHEREAS, many prospective exhibitors feel that it is futile to try to make entries, particularly in the Dairy Cattle Show.

BE IT HEREBY RESOLVED that the Pennsylvania Dairymen's Association duly in meeting on the 18th day of January, 1934 does urgently petition that immediate action be taken to insure the completion of the Farm Show plant in accordance with the original plans for livestock stables and exhibition arena.

DAIRY FARM INSPECTIONS

WHEREAS, the Pennsylvania dairy farmer derives his chief income from the sale of fluid milk, and

WHEREAS, the low price he received for his product has resulted in efforts on the part of the United States Department of Agriculture through the Agricultural Adjustment Act, and

WHEREAS, the General Assemblage of the Commonwealth of Pennsylvania has recently passed a bill creating a Milk Control Board, and

WHEREAS, neighboring states have passed similar legislation and have created Milk Control Boards, and

WHEREAS, the Commonwealth of Pennsylvania and their neighboring states in combination with the United States Department of Agriculture are all united in an effort to secure the dairymen of Pennsylvania a greater return for his fluid milk, and

WHEREAS, the health of the public can best be safeguarded by protecting the dairy industry of this State in order to have an ample and safe milk supply produced close to our great metropolitan centers, and

WHEREAS, the dairy farmers of Pennsylvania have already spent vast sums of money in order to equip their farms to produce a high quality of fluid milk, and

WHEREAS, the dairy farmer fully recognizes his responsibility in producing a high quality of product for fluid milk consumption in order that greater quantities of his product may be consumed, and

WHEREAS, constantly changing requirements of local and State Boards of Health result in the producers of milk being forced to constantly change their equipment and practices, and

WHEREAS, such changes frequently involve heavy expenditures of money on the part of the dairymen, thus defeating the avowed purposes of the Federal Department of Agriculture and the intent of legislation passed in Pennsylvania and neighboring states to return to the dairyman a greater net return for his labor and production costs in the production of fluid milk.

THEREFORE be it resolved that the Pennsylvania State Dairymen's Association in session in Harrisburg, January 18, 1934, respectfully request the Secretary of Health, Commonwealth of Pennsylvania, and all local and municipal Boards of Health in the State of Pennsylvania to join forces in arriving at a uniform standard of health requirements for the production and handling of fluid milk and fluid derivatives of milk so that uniform inspections of all dairies producing a similar grade of milk throughout the Commonwealth will prevail.

BE IT FURTHER RESOLVED that this Association send a copy of this resolution to the Secretary of Agriculture and the Secretary of Health in states adjacent to Pennsylvania, urging their cooperation in a uniform standard of milk production throughout the entire Eastern Seaboard area, where by reason of geographical location of our metropolitan areas the inter-state shipment of fluid milk and fluid derivatives of milk is necessary.

There being no further business, the educational program continued.

C. R. GEARHART, *Secretary*

NOTE: The resolutions were sent to all parties suggested and a very gratifying response received, commending the resolutions and offering support in carrying them out.

NINTH ANNUAL BANQUET

Pennsylvania Dairymen's Association

Fifth Street Methodist Church
HARRISBURG, PA.

Thursday, January 18, 1934

DR. L. M. THOMPSON, *Toastmaster*

ADDRESSES BY

HON. JOHN A. McSPARREN
Secretary of Agriculture of Pennsylvania

A. J. GLOVER
President of the Holstein-Friesian Association and Editor of *Hoard's Dairyman*, Fort Atkinson, Wisconsin

HERD TEST AWARDS

MILK AWARDS

ENTERTAINMENT
Fifth Street Methodist Church Orchestra
Rev and Mrs. Dorsey Miller, J. T. Sheen
State College Varsity Male Quartette

FOR BETTER HAY and PASTURE

THREE BAGS
OF
GRANULAR
AERO CYANAMID
SUPPLY 66 POUNDS OF NITROGEN AND 210 POUNDS OF HYDRATED LIME.

These three bags on one acre will produce a very marked improvement in your hay or pasture.

——ON MIXED HAY——
An increase of 1 ton of 10 per cent protein high-quality cow-hay (average of 176 tests).

——ON PASTURES——
An increase of 75 cow-days of better grazing beginning 2 weeks earlier in the spring (average of 99 tests).

ONE POUND OF NITROGEN COSTING 8 CENTS WILL GROW ENOUGH FEED TO REPLACE 25 CENTS WORTH OF PURCHASED FEED

For further information, write our hayland and pasture specialist, J. B. Abbott, Bellows Falls, Vermont. Ask for special booklet.

AMERICAN CYANAMID COMPANY
Manufacturers of 'Aero' Cyanamid and 'Ammo-Phos'
535 FIFTH AVENUE NEW YORK, N. Y.

Cyanamid is NITROGEN plus LIME

MERIT AWARDS

Presented at the Banquet

Trophies awarded at the Pennsylvania Dairymen's Association banquet, January 18, 1934, in Dairy Herd Improvement Association work, Herd Test work, and Register of Merit work.

By the Pennsylvania Federation of Holstein Clubs:

A loving cup to Dr. L. M. Thompson, president-elect of the Pennsylvania Dairymen's Association in recognition of his valuable and constructive services to Holstein breeders and to the dairy industry throughout the State and the nation.
A loving cup to W. H. Sauers, Lewisburg, Pa.
High D. H. I. A. herd—lbs. milk 13,725, lbs. fat 526.0.

Pennsylvania Jersey Cattle Club:

A model cow to Mercer Sanitorium, Mercer, Pa.
High D. H. I. A. herd—lbs. milk 8,854, lbs. fat 498.1.
A model cow to E. J. Grotzinger, St. Marys, Pa.
High R. of M. cow—lbs. milk 10,729, lbs. fat 658.96.
A model cow to Robert Bamford & Son, Midway, Pa.
High D. H. I. A. cow—lbs. milk 12,580, lbs. fat 712.2.

Pennsylvania Guernsey Breeders' Association:

A cream jug to J. Barlow Cullum, Reading, Pa., R. D. 1.
High D. H. I. A. herd—lbs. milk 9,921, lbs. fat 535.8.

National Ayrshire Breeders' Association:

A trophy to Dunwoody Home Farm, Newton Square, Pa.
High D. H. I. A. herd—lbs. milk 10,634, lbs. fat 460.6.
A trophy to Penshurst Farm, Narberth, Pa.
High herd in herd test—lbs. milk 11,211, lbs. fat 458.83.
A trophy to Sycamore Farms, Douglassville, Pa.
Second high herd in herd test—lbs. milk 10,971, lbs. fat 463.39.

Pennsylvania Brown Swiss Breeders' Association:

A set of three tuned Swiss bells to K. S. Bagshaw, Hollidaysburg, Pa.
High D. H. I. A. herd—lbs. milk 11,111, lbs. fat 480.2.

THE MILK SHOW SPECIAL PRIZE AWARDS

A special prize was awarded by the Pennsylvania Ayrshire Breeders' Association to Guy E. Loy, Newville, Cumberland county, for the best sample of milk from a registered Ayrshire herd which scored 96.9.

A special prize was awarded by the Pennsylvania Guernsey Breeders' Association to E. F. Shepherd, Oxford, Chester county, for the best sample of milk from a registered Guernsey herd which scored 97.55.

A special prize was awarded by the Pennsylvania Guernsey Breeders' Association to Ira Shank, Waynesboro, Franklin county, for the best sample of milk from a Grade Guernsey herd which scored 97.05.

A special award was given by the Pennsylvania Jersey Breeders' Association to W. G. Campbell, Armagh, Indiana county, for the highest scoring milk from a registered Jersey herd which scored 96.5.

A special prize was given by the Philadelphia Interstate Dairy Council to C. B. Smith, Mercersburg, Franklin county, for the best sample of milk produced by a member of the Interstate Milk Producers' Association; milk score, 97.55.

A special prize was given by the Philadelphia Interstate Dairy Council to Guy E. Loy, Newville, Cumberland county, for the best sample of milk produced by a shipper in the Philadelphia Milk Shed; milk score, 96.9.

A special prize was given by the Pittsburgh District Dairy Council to D. W. Stahlman, Brookville, Jefferson county, for the best sample of milk produced by one of its members; milk score, 96.5.

A special prize was given by the Dairymen's League to C. H. Chamberlain, Mansfield, Tioga county, for the best sample of milk produced by a League member in Pennsylvania territory; milk score, 94.6.

Dairy Herd Improvement Association Herd Honor Roll, 1933

Each Dairy Herd Improvement Association member whose herd average production was 300 pounds or more of butterfat during 1933 was placed on the honor roll and given a prize ribbon by the Pennsylvania Dairymen's Association. Eight hundred fifty-eight herds qualified for this honor. The awards were divided into three groups according to amount of production; 454 red ribbons were awarded for herd averages between 300 and 350 pounds of butterfat; 276 blue ribbons for averages between 350 and 400 pounds of butterfat; and 128 purple ribbons for averages above 400 pounds of butterfat. Following is a list of these members arranged according to Association membership and production average:

ADAMS COUNTY—(Adams Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
A. B. C. Williams	York Springs	7.99	R:GH	12,918	451.5
R. M. Spangler	Gettysburg, R. 7	8.89	RH	12,054	411.9
George E. Motter	Littlestown	20.03	R:GH	10,686	389.8
H. D. Waybright	Gettysburg, R. 2	11.52	R:GH: GG	9,690	354.2
E. W. Weaner	Gettysburg	21.13	RH	9,958	353.1
John C. Bream	Gettysburg, R. 4	13.64	RH	9,314	341.5
Edgar Leer	York Springs	23.61	R:GH	9,592	336.3
H. E. Brown	Fairfield	18.41	R:GH	9,486	322.7

ALLEGHENY COUNTY—(Allegheny Association)

Dundee Farm	Sewickley	5.99	RG	9,459	453.0
Robt. Bamford & Son	Midway	26.01	RJ	8,558	440.5
Fairacres Farm	Sewickley	18.34	RG	8,877	430.4
Farmhill Dairy	Sewickley	16.39	RG	7,987	411.8
Allegheny County Home	Woodville	99.26	RH	11,948	408.4
J. F. Byers	Sewickley	6.00	RG	8,396	395.6
R. M. Donaldson	Midway	26.06	RA	8,589	343.3
Joseph Windsheimer	McDonald	21.67	R:GH	9,346	315.7
Bell Brothers	Imperial	18.52	RH	9,757	315.3
Blackburn Farm	Sewickley	14.08	RA	8,148	310.9
J. H. Wilson & Sons	Clinton, R. D.	13.67	RH	8,991	303.4

ALLEGHENY COUNTY—(Elizabeth Association)

E. B. Douglass	Elizabeth	6.00	RG:RH	12,199	498.9
Allegheny Co. Workhouse	Blawnox	53.72	GJ	6,443	337.1
F. L. McKinney	Elizabeth	18.05	RG:R:GH	8,055	332.4
J. D. Guffey	Elizabeth	19.65	RH	9,263	328.0
Silver Maples Dairy Farm	McKeesport, R. 1	33.55	RG	6,437	324.9
Henry Hofmeister	Monongahela, R. 1	17.11	RH:Mixed	8,309	310.8

ARMSTRONG ASSOCIATION—(Armstrong Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Harry Koenig	Tarentum, R. 1	16.37	RH:GG	12,174	395.7
Audley Hileman	Ford City, R. 1	12.58	RH	10,494	368.0
J. T. Iseman	Ford Sity, R. 1	12.00	GH:GG	9,663	366.3
R. D. Marshall	Beyer	27.94	R:GH	10,297	352.3
H. S. Hogg	Worthington, R. 2	12.97	GG:Mixed	7,919	349.0
J. M. Reed	Kittanning, R. 3	35.04	R:GG	7,450	338.8
H. C. Lewis	Kaylor	34.69	GH:GG	8,903	320.0
C. B. McNess and J. F. Shaffer	Kittanning	10.08	RG	6,544	306.0

BEDFORD COUNTY—(Bedford Association)

Fred Coxe	Everett	19.41	RJ	7,928	414.6
Davide Donaldson	Hopewell	8.53	R:GJ	7,907	409.4
Francis Baker	Everett	16.49	R:GJ	7,611	394.3
Allen Eshelman	Everett	13.67	RJ	7,573	386.5
John Baughman	Everett	7.76	RJ	6,950	374.3
W. D. Koontz	Lutzville	6.83	RH	10,539	368.6
S. L. Cessna	Bedford, R. D. 4	19.58	RH:PH	10,854	368.1
C. E. Koontz	Lutzville, R. D. 1	15.13	R:GJ	6,873	367.9
McKinley Woy	Everett	7.67	R:GG	6,926	349.0
George Watters	Bdford, R. D. 1	10.38	R:GJ	6,655	343.8
Carl W. Garland	Buffalo Mills	16.57	R:GH	8,431	328.6
J. E. Miller & Son	Midland, Md.	16.33	R:GJ	8,653	320.9
Falklands	Schellburg	66.21	HJ	5,758	320.0
Stanley A. Koontz	Bedford	32.07	R:GJ	6,071	314.9
Ralph A. Diehl	Lutzville, R. D. 1	7.58	R:GH	7,265	314.7
C. E. Llewellyn	Midland, Md.	22.01	R:GH	8,890	311.0
Earl Jackson	Akersville	8.46	GG	5,871	308.7

BERKS COUNTY—(Central Berks Association)

Walter A. Spatz	Bernville, R. 2	13.25	RH	11,874	403.5
Henry K. Phillips	Mohrsville, R. 1	17.59	R:GG	7,759	375.6
Martin Wolfskill	Bernville, R. 2	22.25	R:GH	10,351	361.3
Harvey Mathias	Bernville, R. 2	12.51	R:GH:Mix	9,556	347.3
Adam H. Faust	West Leesport	14.41	Mixed	8,421	334.3
Nathan Hoppes	West Leesport	5.67	GJ:GH	7,946	326.9
Herbert Kalbach	Bernville	30.75	GH	9,350	316.5
Adam S. Reber	Centerport	10.83	GG	6,706	311.4
Wm. H. Schlappich	Bernville, R. 2	10.00	GH:Mix	7,777	302.1

BERKS COUNTY—(Western Berks Association)

J. Barlow Cullum	Reading, R. 2	17.44	RG	9,921	535.8
Miss Caroline Archer	Reading, R. 1	32.19	RG	8,878	456.2
Wernersville State Hospital	Wernersville	77.25	GH	12,703	425.2
Adam Fasig	Reading, R. 2	14.41	RA:GG	9,306	403.3
Charles Ritzman	Singing Springs	18.64	R:GH	11,816	400.5
Lonicera Farms	Douglassville	37.59	R:GG	7,476	392.1
Ammon Schmeck	Singing Springs	23.96	R:GH	10,687	361.7
Bethany Orphan Home	Womelsdorf	11.71	R:GH	10,344	319.7
Charles D. Bender	Bernville	8.87	R:GH	8,889	306.1
Charles Riegel	Singing Springs	26.83	R:GH	9,161	305.0

BERKS COUNTY—(Northern Berks Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Davide Moll	Hamburg	22.83	R:GH	11,656	393.2
Paul Kohler	Hamburg, R. 2	26.36	R:GH: Mixed	10,944	380.1
Floyd Merkel	Hamburg	17.07	R:GH	10,759	374.0
Charles Scheidy	Bernville	9.57	R:GH	10,947	372.7
George Hamm	Kempton	15.35	R:GH	10,583	369.7
Raymond Delong	Bowers	26.76	RG	7,554	363.9
John Kalbach	Hamburg	24.42	RH	11,100	361.7
Walter Binkley	Lititz	12.08	R:GG	7,674	356.6
J. Clayton Brubaker	Lititz	5.00	RH:R:GJ	9,741	350.0
Herbert Seidel	Virginville	10.06	RA	8,317	344.5
Walter George	Lenhartsville	14.89	RH	9,880	340.8
Charles Schaeffer	Kutztown	15.19	R:GH:Mix	9,600	333.5
Jacob Leiby	Hamburg	7.81	RJ	6,787	327.2
Oscar Spayd	Lititz	18.96	RG	6,467	311.3
Antietam Farms	Stony Creek Mills	49.82	RH	8,864	309.1
Stephen Golubics	Fleetwood	14.58	RG	6,435	307.7

BLAIR COUNTY—(Blair Association)

K. S. Bagshaw	Hollidaysburg, R. D.	8.67	R:SW	11,111	480.2
J. M. Delozier	Hollidaysburg, R. D.	10.58	R:SW	10,868	455.6
Alva R. Long	Portage, R. D.	23.20	RG	8,698	444.3
Miles C. Bagshaw	Hollidaysburg, R. D.	10.88	R:G:SW	8,867	382.6
Herbert Bridenbaugh	Martinsburg, R. D.	24.79	Mixed	8,307	373.4
Preston C. Smith	Martinsburg, R. D.	10.44	R:GH	9,966	363.0
Thurman Hileman	Hollidaysburg, R. D.	18.34	G:SW:Mix	8,208	343.2
Oliver C. Ritchey	Martinsburg, R. D.	31.83	R:GH:Mix	9,236	334.4
G. Clair Smith	Martinsburg	16.34	R:GH:Mix	8,851	327.0
T. D. Horton	Williamsburg, R. D.	17.57	R:GH:Mix	7,934	321.1
John Lloyd, Jr.	Hollidaysburg, R. D.	29.83	R:GG	6,403	315.9
Marion D. Patterson	Hollidaysburg	16.43	R:GG	8,303	314.5

BRADFORD COUNTY—(Canton Association)

R. G. Williams & Sons	Canton	14.14	RH	12,180	444.7
Quay Ward	Leolyn	11.61	R:GH:RJ	10,612	431.5
Clarence Spencer	Canton	19.26	GH	10,219	380.5
R. H. Fleming	Alba	25.12	RH	10,362	371.3
T. M. Watts	Canton	17.14	R:GH	9,977	365.4
G. H. Moody	Canton	12.50	RH	9,431	350.0
Marvin Tebo	Leolyn	16.49	R:GH:Mix	9,340	348.8
L. P. Fairchilds	Canton	20.00	GJ	6,923	338.8
J. P. Van Fleet & Son	Canton	12.75	R:GJ	6,104	337.1
Earl Wilcox	Canton	13.21	CH	8,388	319.7
H. G. Wright	Canton	14.85	R:GG	6,324	314.4
W. R. Wright	Canton	17.88	RG	6,415	307.3
John L. Brackman	Canton	17.73	R:GG	6,330	300.0

BRADFORD COUNTY—(Laurel Hill Association)

William L. Pruyne	Milan	18.79	RH	10,362	368.0
Charles Chaffee	Ulster	18.76	R:GH	9,794	345.6
F. W. Gorham	Wysox	16.58	RH:RA	9,484	328.5
I. P. Chaffee	Towanda	17.63	R:GJ	5,744	320.1
Raymond B. Arnold	Milan	26.81	RH	8,677	316.8
Claude R. Palmer	Ulster, R. 1	17.86	R:GH	8,412	302.5
A. E. Mandigan	Towanda, R. 2	20.29	RH	8,340	300.0

BRADFORD COUNTY—(Troy Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
B. J. Parmenter	Col. X Roads	12.87	RH	11,934	407.4
H. H. Packard	Alba	11.37	RH	9,953	367.6
G. E. Beach & Son	Col. X Roads	15.95	RH	10,260	365.2
Hosea Wolfe	Col. X Roads	16.32	RH	10,096	343.7
Lloyd Wolfe & Son	Troy	10.85	RJ	6,320	335.1
Ben Ballard	Troy	11.66	RH	9,809	324.6
Charles A. Leonard	Troy	17.44	RJ	6,058	322.5
Henry Queal	Gillett	10.16	RG	5,999	306.3
Glenn Noble	Gillett	30.87	PJ	5,855	303.8
J. M. Rockwell & Son	Troy	16.81	Mixed	7,053	302.8
H. B. Wilcox	Milan	14.75	R:GJ	5,660	300.0

NOTE: Col. X Roads means, Columbia Cross Roads.

BRADFORD COUNTY—(LeRaysville Association)

Claude S. Gorham	LeRaysville	26.53	RJ	7,421	403.9
H. W. Russell	Orwell	12.94	R:GH	9,061	333.5
C. V. Baker	LeRaysville	11.50	R:GG	6,619	322.2
Howel Powell & Son	Stevensville	12.44	R:GH	8,370	311.5
M. B. Chilson	Nichols, N. Y.	11.77	R:GH	8,492	310.5

BRADFORD COUNTY—(Wyalusing Association)

F. B. & S. H. Kerrick	Towanda, R. 3	23.05	RH	9,981	356.0
Welbec Farm	Wyalusing	30.73	R:GG	6,926	349.0
S. L. Culver	Laceyville	19.44	RH	9,489	327.7
Karl D. Shiner	Towanda, R. 5	22.56	R:GJ	6,832	322.6
Taylor McCarty	Sugar Run	13.65	RH	8,858	317.2
Charles O. Champbell	Wyalusing, R. 5	15.24	RH	9,017	304.2

BRADFORD COUNTY—(Ulster Association)

L. A. Harris	Milan	10.53	RJ	7,125	420.0
G. E. Harris	Milan	11.50	RJ	7,033	406.6
Harry Layman	Ulster	13.48	P:GH	10,351	381.2
H. G. Von Wolffradt	Athens	16.24	RJ	6,950	371.2
George J. Martin	New Albany	5.72	RH	9,908	357.0
F. O. Wright	Milan	20.64	R:GJ	6,360	351.0
M. A. Cranmer	Ulster	25.95	Mixed	7,994	317.0
F. H. Colwell	Ulster	25.16	RA	7,138	300.0

BUCKS COUNTY—(Bucks No. 1 Association)

J. P. Canby & Son	Hulmeville	30.06	RH:G	13,112	469.8
E. F. Stewart	Colmar	13.66	RG	7,543	387.8
Claude Myers	Plumsteadville	22.39	R:GG:J	7,619	385.9
Philip W. Smith	New Hope	30.30	R:GG	7,481	373.5
Bolton Farms	Bristol	38.39	RG	7,193	363.1
Willard Wright	Yardley	13.56	R:GH	10,655	361.2
Amos Satterthwaite	Yardley	14.37	RH	10,687	352.9
M. C. Satterthwaite	Woodside	13.00	RH	10,312	344.7
J. S. Briggs	Yardley	19.92	RG	7,471	343.8
L. P. Satterthwaite	Newtown	20.41	RH	9,541	338.9
R. E. Atkinson	Wrightstown	12.82	RJ	6,490	326.8
W. S. Torbert	Newtown	20.00	R:GG	6,362	326.0
C. A. Row	Yardley	16.89	RH	9,421	309.2
J. Iden Smith	New Hope	25.24	R:GG	6,150	308.9

BUCKS COUNTY—(Bucks No. 2 Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
W. M. Hunsberger	Plumsteadville	15.59	RH	11,755	423.8
Joseph Hallowell	Ivyland	17.73	R:GHG	11,826	422.1
Homer S. Wentz	Quakertown	17.98	R:GH:G	10,797	401.6
Edwin Linson	Jamison	21.58	Mixed	10,225	396.7
Raymond Unangst	Kintnersville	23.57	R:GH:Mix	9,999	380.6
Wilmer Twining	Wycombe	10.60	RH	11,013	367.5
Alvin Worthington	Newtown	14.43	R:GG	7,285	364.5
C. H. Smith & Son	Wycombe	18.51	RG	7,015	352.3
I. S. Gross	Plumsteadville	9.45	RH	10,758	349.4
Ernest Foellner	Ottsville	18.04	RH	9,240	347.1
J. H. Cliffe	Ivyland	13.05	R:GG	7,276	345.1
Max Frey	Ottsville	16.20	RJ	6,497	341.9
Frank Oehrle	Hatboro	16.02	RH	9,767	333.9
J. A. Shelly	Fountainville	14.09	GG	6,574	332.9
C. L. Wilkinson	Rushland	18.82	R:GH	9,238	329.0
Harry C. Wilson	Richboro	33.95	RH:GH: Mixed	9,065	322.2

BUTLER COUNTY—(Butler Association)

R. S. Cain	Saxonburg, R. D.	8.30	R:GH:J	10,598	403.3
C. A. Wachsmuth	Butler, Star Rt.	8.58	RG	7,634	399.4
Clyde Moore	Slippery Rock, R. D.	15.93	R:GG: GJ	6,881	372.0
C. F. Edgar	Renfrew, R. 2	11.09	RG	7.636	371.2
C. R. Hartzell	Renfrew, R. 2	7.63	R:GG	7,824	366.5
John Schiever	Harmony, R. 2	26.55	R:GJ: Mixed	9,025	363.5
Clyde Peffer	Portersville, R. D.	5.44	R:GG	7,237	357.1
T. Cooper & Son	Euclid, R. D.	22.07	R:PJ	6,567	348.2
E. S. Cooper	Slippery Rock, R. D.	15.66	RG	6,381	342.7
C. I. Davison	Evans City, R. D.	9.05	R:GG	6,534	330.1
J. Roy Humphrey	Slippery Rock, R. D.	20.02	R:PJ	6,446	326.8
Frank Pflugh	Harmony, R. D.	21.13	R:GH	9,600	319.0
R. A. Hay	Saxonburg, R. D.	9.60	RH	9,879	313.8
Paul Blair	Renfrew, R. 2	8.25	RG	6,000	311.4
J. C. Belles & Sons	Harmony, R. D.	11.96	RH	8,997	305.6
Henry Reefer	Zelienople, R. D.	8.36	RG	6,361	302.1

CENTRE COUNTY—(Centre No. 1 Association)

Western Penitentiary	Bellefonte	78.41	R:GH	15,090	514.8
Peters Brothers	Port Matilda	13.26	RH	10,250	373.6
L. R. McGill	Mill Hall	11.02	R:GH	10,043	359.0
T. C. Kryder	Mill Hall	15.00	RH	10,185	350.5
Shoemaker Bros.	State College	22.08	R:GH	10,738	340.3
Lowden Kyle	Mackeyville	8.36	R:GH	9,958	338.5
George E. Weight	Bellefonte	16.07	R:GH	9,377	337.4
W. L. Confer	McElhattan	11.49	R:GH	8,801	318.2

CENTRE COUNTY—(Centre No. 2 Association)

W. F. Rishel	Centre Hall	14.20	RH	11,368	362.7
S. F. Esterline	Greenburr	9.89	RJ	6,479	345.0

CENTRAL PENNSYLVANIA GUERNSEY BREEDERS' ASSOCIATION

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
J. W. Burket & Son	Tyrone, R. 1	12.13	R:GG	8,987	423.8
E. Paul Hoover	Patton, R. D.	13.49	RG:GH	8,683	413.2
Russell J. Edwards	Ebensburg, R. D.	16.93	GG:Mix	8,652	405.4
S. H. Markey	Loysburg	8.11	RG	8,038	400.0
Knarr Bros.	Du Bois	35.39	R:PG	8,047	399.4
D. A. Morrow	Tyrone	12.05	RG	7,847	387.0
Mrs. C. M. Schwab	Loretto	15.07	RG	6,519	359.1
Aug. E. Farabaugh	Loretto	5.62	RG	7,024	350.6
Griffith Estate	Ebensburg	24.49	RG	7,057	350.4
A. J. Yahner	Patton, R. D.	10.84	PJ	5,813	327.6
W. J. Karlheim	Dysart, R. D.	9.33	R:GG	6,210	322.8
S. B. Wasson	State College	24.13	R:GG	6,579	307.5
J. E. Hindmen	Tyrone, R. D.	25.69	RG	6,407	307.1

CHESTER COUNTY—(Chester Valley Association)

Fairlamb Beale	Lincoln University	15.47	RJ	7,599	369.5
W. C. Pearson	Downingtown	23.57	RJ	7,189	362.8
Harry B. Shenk	Elverson	36.44	RG	7,456	360.1
John Kent Kane	Glen Loch	41.82	R:GG	7,160	356.9
John Speirs	Downingtown	19.84	RJ	6,660	351.4
W. G. Mendenhall	Downingtown	38.92	GH:Mix	9,236	350.2
James Latta	Parkesburg	22.07	GG:GH	7,185	333.8
Richard L. Fox	Downingtown	23.48	R:GG	6,557	312.0
Wm. M. Lloyd	Downingtown	26.86	RJ	5,810	309.1
Thomas & Howell	Whitford	58.76	R:GG	6,374	302.6

CHESTER COUNTY—(Coventry Association)

Pennhurst St. Sch.	Pennhurst	94.78	GH	13,413	435.0
William H. High	Phoenixville, R. 4	18.94	GG	12,021	409.8
Montcalm Farms	Phoenixville, R. 3	36.79	R:GH	7,420	376.9
Rose Way Farms	Paoli	32.62	RJ	6,814	346.2
Laurel Lock Farms	Pottstown	114.94	R:GG	7,035	342.3
H. L. Stoltzfus	Pottstown, R. 2	20.71	RH	9,224	327.8
Arthur Detwiler	Phoenixville, R. 4	14.69	GG:R:GH	7,127	324.2
Furman H. Gyger	Kimberton	28.82	R:GH	8,133	315.5
Warwick Furnace F.	Glenmore, R. D.	59.05	R:GG	6,997	315.0
H. Supoit & Son	Phoenixvilcle, R. 4	34.06	R:GH	8,259	310.1
H. R. Snaveley	Pottstown	22.75	R:GH:GG	8,091	302.1
Vally Hill Farm	Phoenixville, R. 2	44.09	R:GG	6,388	303.1

CHESTER COUNTY—(West Chester Association)

Dunwoody Home Farm	Newtown Square	15.83	RH	10,643	460.6
William Reeves	Marshalton	13.74	GG	7,414	379.2
Delaware County Home	Lima	22.35	GH	10,238	378.0
Harvey Williams	Coatesville	31.57	R:GJ	6,928	355.9
Norman Watson	Coatesville	15.97	GG	7,897	336.4
Norman Frank	West Chester, R. D.	23.15	GH	8,800	335.3
LeRoy Harvey	West Chester, R. 5	19.96	GG	6,855	333.4
Lawrence Folchman	Westtown	130.57	R:GH	9,518	331.8
Marshall Jones	West Chester	24.16	GG:GH	8,931	312.3
E. T. Trigg	Malvern	32.18	RG	6,423	309.8
John Stratton	Glen Mills	12.85	GG:GJ	7,919	307.1

CHESTER COUNTY—(Oxford Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
H. S. Gatchell	Peach Bottom	18.49	RJ	7,443	423.0
Caleb Chambers & Son	West Grove	17.79	R:GJ:Mix	7,849	382.8
D. L. Gallagher	Peach Bottom	28.73	R:GJ	7,899	388.6
Reid & Dickey	Oxford	9.57	R:GH	9,499	378.5
Pierre S. duPont	Kennett Square	46.56	RG	7,407	369.9
Thomas Sloan	Oxford	20.53	R:GH:Mix	9,684	368.8
J. I. Lawrence	Lincoln University	19.55	R:GG: RGH	8,478	340.3
George Cullen	Elkview	26.46	R:GG	6,899	337.3
Lester Gallagher	Peach Bottom	17.28	R:GG:H	7,560	337.1
Allen Dubble	Peach Bottom	14.73	RJ	6,454	336.8
Lewis Brown	Nottingham, R. 3	15.30	Mixed	8,716	324.4
Dr. W. B. Ewing	West Grove	48.72	:GG	6,236	315.4
John A. McSparran	Furniss	17.76	R:GG	6,972	314.2
L. R. Hourdequin	Avondale	29.98	R:GG	6,509	313.4
Edgar Haines	West Grove	23.99	GG	6,674	309.5
H. L. Stubbs	Oxford, R. 3	17.68	RJ	8,527	303.6
Conner & Killinger	Avondale	49.39	R:GJ	5,910	302.5

CLARION COUNTY—(Clarion Association)

R. L. Fleming	New Bethlehem	13.32	R:GG	8,100	428.9
Ray Shook	Curllsville	16.45	R:GG	8,058	393.9
Foxburg Farm Herd	Foxburg	39.58	RG	7,240	374.5
D. A. Stahlman	New Bethlehem	12.41	R:GG	7,048	374.2
J. W. M. Gruber & Son	Shippenville	28.16	R:GG	7,346	368.0
F. L. Stahlman	New Bethlehem	5.66	R:G G	6,578	358.1
H. G. Mahle	Miola	9.79	R:GG	6,396	339.4
J. P. C. King	Summerville	10.94	RH	9,434	337.4
C. L. Risher	East Brady	26.10	R:GH: RGG	8,300	333.3
Wm. & C. A. McCauley	New Bethlehem	22.00	RH	9,034	328.5
R. M. Burnham	Strattonville	11.85	RG	6,275	325.4
E. H. DeVilder	Miola	8.15	RG	6,195	316.6
J. W. Hartman & Son	Sligo	15.06	R:GG	6,241	315.8
F. S. Port	Clarion, R. 1	21.60	RG:RJ	6,260	308.1

CLEARFIELD COUNTY—(Clearfield Association)

Morris W. Shimmel	West Decatur, R. D.	9.80	Mixed	11,412	489.3
S. J. Zemka	Clearfield, R. D.	12.06	Mixed	8,744	414.0
W. A. E. Leitzinger	Clearfield	8.70	RJ	7,305	403.7
Wendell Turner	Philipsburg, R. D.	18.70	Mixed	9,431	399.3
S. R. Thompson Est.	Philipsburg, R. D.	11.85	Mixed	9,406	397.0
B. W. Dale	Woodland	17.50	R:GJ	6,750	373.3
R. S. Hurley	Morrisdale	12.53	R:GJ	6,218	349.0
C. O. Mattern	Osceola Mills	16.19	RG	6,918	346.7
Hotel Logan Farm	DuBois, R. D.	13.50	R:GH	7,839	346.3
L. S. Hay	Sabula, R. D.	10.92	R:GG	7,248	346.1
Clearfield County Home	Clearfield	14.45	GH	9,016	345.6
S. V. McKee	Westover	8.41	R:GG	6,588	335.5
Metzger & Leiby	Curwensville	30.32	Mixed	8,011	329.2
Bellnap Farm	Mahaffey	12.55	RG	6,687	324.3

COLUMBIA COUNTY—(Columbia Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Central Poor District	Retreat	36.89	RH	12,028	411.1
Danville State Hospital	Danville	90.81	R:GH	11,797	408.2
Dorrance Reynolds	Dallas	16.31	RG	8,590	398.6
H. B. Rote	Millville	11.56	RH	11,336	380.7
Samuel Yost	Stillwater	5.75	RG	6,354	333.9
R. J. Breisch	Catawissa	19.03	R:GG	6,659	321.6
Bloomsburg Fair Assoc.	Bloomsburg	9.87	RG	6,271	305.1

CRAWFORD COUNTY—(Western Crawford Association)

J. S. Patton	Hartstown	18,22	R:GH	10,511	371.7
Port Eckels	Venango	5.87	RG	6,816	353.7
Raleigh G. Manning	Linesville	19.80	Mixed	8,044	342.7
Crawford County Farm	Saegertown	14.50	RH	9,367	316.5

CRAWFORD COUNTY—(Crawford-Venango Association)

Harry Whitman	Diamond	5.43	RJ	8,088	431.4
Harry I. Sharp	Diamond	6.04	RJ	7,174	428.5
Irwin Smith	Guys Mills	10.08	RH	12,026	419.8
Lee Luce	Guys Mills, R. D.	14.35	RJ	7,203	361.4
Joseph Poux	Guys Mills	9.44	GH	9,712	350.6
Mrs. Nova Noel	Guys Mills	10.03	R:GJ	6,616	318.9
H. W. Judd Estate	Townville	7.82	R:GH:GG	8,453	317.1
Wesley Reitze	Meadville, R. 5	12.64	R:PH	9,240	306.4
F. W. Smith	Meadville, R. 1	12.38	RJ	5,418	300.0

CRAWFORD COUNTY—(Titusville Association)

C. O. Vosburgh	Titusville, R. D.	7.39	PJ	7,077	392.6
D. N. Burrows	Pleasantville	19.81	RH	10,678	352.1
George M. Hummer	Titusville, R. 2	13.53	RJ	6,466	341.4
Hasbrouck Bros.	Titusville, R. 2	19.29	RH	9,989	339.5
James Kelly	Titusville, R. D.	18.00	RG	6,899	338.3
A. K. Hummer	Titusville, R. 2	23.24	RH	9,718	333.5
J. P. Harrison	Centerville, R. 1	21.63	GH:G	8,607	332.2
Raymond & Arthur Harrison	Spartansburg	21.63	R:GH	8,980	317.9
H. O. Hoovler	Tryonville, R. 2	10.58	R:GG:Mix	6,629	307.7

CUMBERLAND COUNTY—(Cumberland No. 1 Association)

Ivo V. Otto	Carlisle, R. 6	20.22	RH	13,662	496.4
A. G. Wingert	Mechanicsburg, R. 5	14.87	RH	12,697	427.5
S. B. Weber	Mechanicsburg, R. 2	22.84	RH	11,715	405.6
J. H. Lear	Carlisle, R. 5	16.97	RH	10,981	404.1
Vance C. McCormick	Harrisburg, Box 247	5.00	RG	8,297	401.1
George M. Harman	Barnitz	7.99	R:GG	8,844	396.3
Clarence M. Cornman	Mechanicsburg, R. 5	13.39	RH	11,284	394.0
Abner E. Rider	Mechanicsburg, R. 2	16.74	RH	11,682	391.5
F. D. Myers	Mechanicsburg, R. 1	21.51	R:GH	11,289	388.5
G. Weir Strock	Mechanicsburg, R.2	28.87	RH	11,045	380.3
Albert F. Kost	Carlisle, R. 7	21.16	RH	11,015	378.8
George Nauss, Jr.	Carlisle, R. 7	17.52	R:GH	10,292	360.4
Methodist Hom e	Mechanicsburg	16.34	R:GH:GG	9,340	360.4
Abram N. Lehman	Carlisle, R. 2	15.67	RH	10,527	357.2
Harry E. Hamsher	Mechanicsburg, R. 4	8.83	R:GH	9,927	352.5

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Mark R. Basehere	Mechanicsburg, R. 5	12.19	R:GH	10,318	352.3
Miss Anne McCormick	Harrisburg, Box 247	6.75	RG	7,236	352.0
F. B. Sellers, Jr.	Carlisle	9.21	RH	10,244	348.3
Charles E. Mentzer	Mechanicsburg, R. 2	11.74	RBS:Mix	9,142	347.2
H. K. McCullough	Newville, R. 1	26.16	RG	6,887	345.4
J. N. Kruger, Herd No. 1	Carlisle	16.45	R:GH	9,655	343.4
George E. Wilson	Mechanicsburg, R. 2	9.08	RH	9,670	332.3
C. G. Niesley	Mechanicsburg, R. 1	20.83	RH	9,127	330.5
Walter A. Eckert	Mechanicsburg, R. 5	15.59	R:GG	6,908	330.0
S. W. Zeigler	Mechanicsburg, R. 2	14.53	RH	8,849	304.7

CUMBERLAND COUNTY—(Cumberland No. 2 Association)

Wilson A. Shughart	Carlisle, R. 7	9.36	RH	12,999	452.3
Mervin C. Shughart	Mechanicsburg, R. 5	9.45	R:GH	10,883	393.1
Hugh L. McMeen	Carlisle, R. 6	15.88	RH	11,428	392.6
Enos H. Hess and Ira J. Zercher	Mechanicsburg, R. 2	16.42	R:GH	11,108	389.3
J. Brady Smith & Son	Shippensburg, R. 1	18.55	R:GH	10,846	382.1
Charles C. Hoffer	Carlisle	13.13	R:GH	10,313	374.7
R. Merle Goodhart	Mechanicsburg, R. 1	11.83	R:GG	7,941	372.4
J. O. Chronister	Carlisle, R. 6	12.47	R:GH	10,675	370.4
R. Bruce Stuart	Carlisle, R. 3	12.82	RH	11,053	355.6
W. A. Woods & Son	Carlisle, R. 8	13.00	RH	10,554	353.1
S. Ellsworth Landis	Newville, Box 373	16.79	GG	7,188	340.0
Clyde C. Woods	Carlisle, R. 6	13.28	R:GH	9,680	336.0
Benj. J. Zimmerman	Carlisle, R. 7	9.08	RH	9,600	334.5
Harper J. Wetzel	Carlisle, R. 4	14.68	RH	9,651	323.8
Clarence R. Sunday	Carlisle, R. 7	14.02	R:GH	9,535	320.6
Ernest Shover	Carlisle, R. 7	12.11	R:GH:Mix	8,376	316.6
Paul O. Sunday	Carlisle, R. 7	16.34	R:GH:GG	8,392	310.1

DAUPHIN COUNTY—(Dauphin Association)

Benjamin L. Weiss	Lykens, R. 1	5.79	R:GH	12,288	454.5
J. Lesley Gabel	Her shey, R. 1	9.33	P:GG	8,981	412.1
Harrisburg State Hosp.	Harrisburg	53.33	R:GH	13,018	405.8
C. K. Fertig	Dauphin	9.34	RH	12,004	379.3
A. H. Erdman	Elizabethville	18.18	RH	10,188	355.4
Joseph Kreider	Annville, R. 6	12.72	RH	10,556	353.7
Hershey Indus. School	Hershey	446.11	R:GH	10,061	337.0
Frank E. Foreman	Hummelstown, R. 2	14.61	RH	9,946	328.3
Howard Speece	Dauphin	18.91	R:GH	9,671	327.3
Frank Dissinger	Lebanon, R. 6	17.55	RH	10,148	326.4
Max A. Laffer	Middletown	11.13	RH	8,983	318.5
Odd Fellows Home, Pa.	Middletown	8.90		9,524	315.3

ERIE COUNTY—(Wattsburg Association)

Hazen Follett	Corry, Pa.	14.20	RH	10,886	352.0
Lester Hosbach	Erie, R. 1	32.46	RH	10,142	338.4
Frank Blackman	Wattsburg	15.56	RH	10,232	321.6
Glenn Steves	Waterford, R. 2	10.59	RH	9,958	319.8
Sacred Heart Mission House	Girard	30.35	RH	9,234	313.3
Ames E. Brown	W. Springfield, R. 1	20.18	R:GH	8,759	311.4
Harold Trask	McKean, R. 1	16.75	R:GH	8,202	306.1

FAYETTE COUNTY—(Fayette Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
G. G. Gault	Dawson	11.12	GG	8,121	427.0
E. E. Arnold	Vanderbilt	9.94	RH:GH	11,595	388.7
Pleasant Level Dairy	Connellsville	27.21	RH: RGG	8,558	346.2
T. W. Gans & Son	Gans	13.97	Mixed	7,839	341.7

FRANKLIN COUNTY—(Western Franklin Association)

Wilson Sisters	Metal	7.08	Mixed	7,867	418.3
J. W. Aughinbaugh	Mercersburg	12.32	R:GG	7,946	386.4
J. W. Hoffeditz	Mercersburg	14.99	P:GG	8,154	375.2
C. H. Neagly	Mercersburg	22.17	Mixed	7,879	307.6

FRANKLIN COUNTY—(Southern Franklin Association)

Irvin Benedict	Waynesboro	9.52	RG	8,736	443.2
M. B. Mentzer	Chambersburg	11.35	RH	10,706	417.7
James Dayhoff	Waynesboro	15.18	RA:G	10,052	417.3
W. H. Stevenson	Midvale	39.05	R:GG	8,853	411.5
Ira Shank	Waynesboro	15.38	GG:Mix	8,942	370.9
W. F. Barkdoll	Mont Alto	30.24	R:GH:Mix	9,560	363.1
J. R. Johnston	Waynesboro	41.00	RA:Mix	8,152	318.5

HUNTINGDON COUNTY—(Huntingdon Association)

Pa. Indus. School	Huntingdon	49.27	R:GH	13,592	474.5
W. H. Woolverton	Alexandria	13.79	RG	8,060	401.5
N. E. Black	Alexandria	18.16	R:GG	8,245	387.3
H. E. Grazier	Warriors Mark	11.33	R:B:S	9,618	383.3
Walter Henderson	Petersburg	13.72	R:GBS	8,641	355.1
S. L. Smith	Mill Creek	14.48	Mixed	8,970	348.8

INDIANA COUNTY—(Indiana No. 1 Association)

William S. Wetzel	Marion Center	13.82	R:GJ	8,421	451.4
H. O. Kimmel	Shelocta	12.78	RH	12,560	434.0
C. C. Pollock	Marion Center	6.67	R:GJ	8,131	431.6
John S. Rankin	Indiana, R. 1	9.87	R:GJ	6,927	402.8
Indiana Co. Home	Indiana	19.38	RH	11,697	400.1
Clyde Houck	Clymer, R. 1	9.58	RJ	7,222	390.8
James S. Cornell	Blairsville	14.44	R:GH:Mix	9,986	388.3
Torrance State Hosp.	Torrance	39.42	RH	12,394	379.6
Quay McMillen	Clymer, R. 1	10.91	R:GJ	7,401	371.8
H. H. Wetzel & Sons	Marion Center	10.50	R:GJ	7,289	368.8
W. F. Barkley	Livermore	13.64	GG	7,476	363.7
C. S. Gerhard	Blairsville	19.61	RH	10,557	363.5
Walter Simpson	Marion Center	12.88	R:GJ	6,787	362.4
G. C. Swan	Home, R. 1	15.08	R:GJ	7,001	357.6
Carl Walker	Marion Center	13.67	R:GJ	6,730	351.7
H. H. Barnhart, Jr.	Livermore	15.60	Mixed	7,883	347.7
H. M. Travis	Smicksburg	11.21	R:GG	7,253	336.4
E. G. Rice	Dixonville	8.14	R:GJ	6,583	323.3
C. F. Allen	Dayton, R. 1	9.11	R:GG	6,787	321.9
C. D. Bence	Marion Center	19,88	R:GJ	6,248	315.7
Wm. C. McMillen	Home, R. 1	15.80	R:GJ	6,676	312.0
W. G. Montgomery	Home, R. 2	8.38	GG:Mixed	6,744	307.1
Jerry F. Kimmel	Shelocta	7.35	RH	9,014	302.8

INDIANA COUNTY—(Indiana No. 2 Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
H. B. Wetzel	Marion Center	6.46	R:GJ	7,935	437.3
Henry Townsend	South Bend	9.12	RG:GJ	7,935	406.8
J. F. Pounds	Indiana, R. 5	17.08	R:GH:Mix	9,554	401.9
H. A. McIsaac	Rochester Mills	10.50	GJ	6,815	390.8
Warren Buterbaugh	Penn Run	8.00	GJ:GG	7,105	385.4
J. Paul Kimmel	Shelocta	7.92	R:GH:GJ	10,186	385.2
M. C. Stewart	Homer City	10.17	Mixed	7,457	357.7
R. L. Boucher	Clymer, R. 1	14.21	R:GG	7,448	357.0
J. M. Hood & Sons	New Florence	15.57	RJ	6,677	335.1
James Lynch	New Florence	20.62	R:GG	6,879	330.1

JEFFERSON COUNTY—(Jefferson Association)

A. J. Bullers	Brookville	7.50	G:RG	8,123	436.3
John Mohney	Punxsutawney, R. 4	11.65	P:GJ	7,688	427.3
Angus Wilson	Punxsutawney, R. 4	10.03	R:GJ	7,325	423.5
G. O. Schuckers	Brookville	13.32	R:GH	11,453	417.0
Harry Lindy	Reynoldsville, R. 4	8.49	R:GG	6,892	390.9
E. E. Swineford	Reynoldsville, R. 1	21.45	R:GJ	7,226	390.3
Wm. J. Youngdahl	Brockport	9.54	R:GG	7,353	358.8
Mitchell & Lingenfelter	Punxsutawney, R. 5	8.97	R:GH	8,529	350.0
The Wm. Irvin Co.	Big Run, R. 1	27.16	R:GG	6,772	339.6
J. W. Syphrit	Reynoldsville, R. 4	6.87	R:GG	5,615	338.3
Dr. F. D. Pringle	Punxsutawney	20.65	R:GG	6,564	330.0
L. B. Shannon	Brookville	13.69	G:RJ:Mix	6,652	318.0
Howard Smith	Reynoldsville, R. 2	15.75	Mixed	7,451	316.6

JUNIATA COUNTY—(Juniata Association)

T. R. Auker	Mifflintown	10.62	RH	12,410	412.2
H. C. Zook & Son	Mifflin	14.72	RH	10,806	391.4
H. I. Gray & Son	Honey Grove	14.47	RH	10,430	357.6
C. A. Musser	Oakland Mills	12.38	R:GH	8,654	323.5
N. W. McCahan	Mifflin	8.53	R:GH	8,803	306.0
J. L. Gelnett	Millerstown	8.08	RH	8,482	300.0

LACKAWANNA COUNTY—(Lackawanna Association)

E. B. Jermyn	Clarks Summit	13.34	GG:GJ	8,051	356.9
Vera T. Seamans	Factoryville	17.01	GH:PG	8,741	338.3
T. W. McLain & Son	Moscow	36.92	GH	9,031	313.2

LANCASTER COUNTY—(Garden Spot Association)

Geo. G. Sauders	East Earl, R. 1	13.67	RH	9,902	318.1
M. V. Brubaker	New Holland, R. 2	11.10	RH	10,983	353.2
John B. Ranck	New Holland, R. 2	7.60	RA	7,793	308.2
H. K. Martin	Goodville	15.02	R:GH	8,878	302.8
Ira M. Eby	Gordonville, R. 1	16.14	RH	11,508	380.0
I. W. Brendle	East Earl, R. 1	6.51	R:GH	11,220	375.8
Jacob S. Horst	Bareville, R. 1	13.06	R:GA	9,177	353.9
Mast Stoltzfus	Morgantown	22.11	RH	11,820	390.2

LAWRENCE COUNTY—(Lawrence Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Lauren Thompson	New Wilmington	17.50	RJ	7,899	406.9
R. W. Hartenbach	Monaca	14.13	R:GG	7,299	404.3
Arnold Bros.	Beaver Falls, R. 4	12.74	RG	6,898	345.6
J. W. Martin & Sons	Bessemer, Box 228	19.99	RJ	6,465	344.6
H. L. McCurley & Son	Enon Valley, R. 2	13.61	R:GJ	6,349	343.4
J. W. Bronson	New Galilee, R. 1	15.54	RJ	6,091	333.0
J. B. Elder	Volant, R. 3	8.25	RH	9,992	332.3
J. A. Boak & Sons	New Castle, R. 4	19.63	RJ	6,452	324.0
Gilkey & Wright	Mahoningtown, R. 8	11.14	R:GG: R:GJ	6,559	315.1
H. D. Goehring	New Brighton	20.02	R:GA	7,664	309.2

LEBANON COUNTY—(Lebanon Association)

Frank W. Fernsler	Lebanon, R. 1	31.75	RH	13,229	434.4
Fairview Farm No. 1	Cornwall	45.54	RG	8,915	430.5
Isaac Mock	Myerstown, R. 2	8.74	RG	7,821	417.4
Fairview Farm No. 2	Cornwall	18.58	RG	7,898	385.4
Frank Heilman & Son	Lebanon, R. 3	31.04	R:GH	11,099	382.3
Henry M. Ebersole	Lebanon, R. 4	12.54	RH	11,634	380.6
A. G. Brubaker	Myerstown, R. 2	10.91	RH	11,527	377.4
Wm. D. Boeshore	Lebanon, R. 3	10.49	R:GG	7,364	358.7
M. H. Bennetch	Sheridan	18.77	RH	10,849	356.2
Wayne Keller	Myerstown	20.15	R:GH	10,586	342.1
Robt. B. Boyer	Lebanon, R. 6	17.82	RA	8,681	335.8
Harry S. Forney	Palmyra, R. 2	23.47	R:GG:Mix	7,644	333.3
J. H. Schott	Lebanon, R. 6	23.86	RH	10,226	332.2
Leroy Hostetter	Annville, R. 2	21.22	RA	8,652	324.5
Saml. K. Wengert	Lebanon, R. 7	25.72	R:GH:Mix	8,911	309.5
C. C. Gingrich	Upper Lawn, Palmyra, R. 2	24.12	RH	9,318	309.2

LEHIGH-NORTHAMPTON COUNTIES—(Lehigh-Northampton Association)

L. A. Zimmerman	Lehighton, R. 1	21.67	RH	14,805	489.4
M. M. Shoemaker	Walnutport, R. 1	5.16	R:GH	12,827	425.9
Allentown State Hos.	Allentown	50.25	R:GH	12,701	409.2
Wm. Stigerwalt	Lehighton, R. 5	12.07	RH	10,458	395.7
Edna Abel	Nazareth, R. 1	11.59	RH:GG	10,057	384.8
Willow Brook Farm	Catasauqua	27.66	RG	7,679	382.6
Floyd Shook	Pen Argyl, R. 1	20.42	RH	10,852	371.7
Wm. W. Shoemaker	Walnutport, R. 1	6.00	G:GH	9,979	358.8
Northampton Co. Home	Nazareth	24.67	GH	10,405	344.9
H. C. Trexler	Allentown	8.60	RJ	6,360	343.6
B. L. Hindenach	Easton, R. 4	17.98	RH:GG	9,087	343.2
Claude Kemmerer	Bethlehem, R. 1	12.25	R:GH	8,935	338.9
Wm. H. Rupp	Breiningsville, R. 2	13.06	RH	9,214	321.6
Harold Ziegler	Breiningsville, R. 2	13.95	RH	9,381	326.5
Frank Heller	Easton, R. 3	4.43	R:GH	8,867	323.6
Wenz Farm	Breiningsville	33.46	GG	6,290	313.1
Weyhill Farm	Bethelehem, R. 4	72.29	RH	8,116	309.1
River Valley Farm	Easton, R. 5	25.87	R:GH	8,239	308.5
P. G. Lichtenwalner	Emaus, R. 1	21.62	RH	8,939	307.8

LYCOMING COUNTY—(Lycoming Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
State Ind. Home	Muncy	26.20	RH	12,982	450.2
H. R. Paulhams	Hepburnville	14.52	RH	9,714	361.6
W. D. Snyder	Hepburnville	16.79	RH	10,714	360.1
H. A. Snyder	Montoursville	18.12	RH	9,969	357.7
O. A. Shirey	Linden	17.76	RH	10,602	350.0
McCracken & Zerbe	Jersey Shors	24.00	R:GH	9,517	330.8
LaRue Reed	Hughesville	14.85	R:GH	8,208	334.8
C. L. Buss	Montgomery	9.88	RH	9,742	314.2
C. H. Mantle	Jersey Shore	6.22	GH	8,677	310.3
S. L. Nicholson & Son	Muncy	12.23	RH	9,118	308.6
Mrs. Alice M. Tule	Muncy	26.17	R:GH	9,747	306.4
J. D. Lunger	Lairdsville	6.35	R:GG	5,978	304.0

MERCER COUNTY—(Grove City Association)

Mercer Sanitarium	Mercer	15.67	RJ:G	8,854	498.1
T. P. Campbell	Grove City	16.87	R:GG:Mix	9,769	464.5
Mercer Cottage Hos.	Mercer	11.03	R:GJ:Mix	9,519	446.5
Gilbert McDowell	Grove City	14.48	RJ	8,055	434.0
Lee Critchlow	Harrisville	16.55	R:GJ	7,375	409.0
C. E. Cummings & Son	Mercer	13.50	GJ:G	7,876	404.5
W. I. Blake	Mercer	15.62	RJ	7,623	403.5
Roy Henderson	Sandy Lake	7.10	GJ	7,458	393.0
J. D. Baker	Grove City	11.22	RJ	6,501	389.3
C. M. Worley	Mercer	7.67	RG	7,386	389.0
Hugr Fergus	Slippery Rock	32.27	GJ:Mix	7,889	383.5
John Porter	Sandy Lake	16.14	RJ	6,897	379.7
A. M. King	Mercer	13.09	R:PJ	6,604	367.1
Amos Weaver	Mercer	10.98	GG:Mix	8,124	357.8
L. G. Pearson	Mercer	13.76	R:GG:Mix	8,000	352.0
W. J. Hazlett	Grove City	15.78	R:GG	6,597	318.6
F. L. Perrine	Sandy Lake	12.41	R:GJ	5,930	317.3
**Mrs. Mabel Williams	Stoneboro	14.10	R:GG:J	5,672	315.4
I. O. O. F. Home	Grove City	17.72	R:GH	9,652	315.0
S. C. Miller	Grove City	21.43	R:GJ	5,841	314.1
Clarence Amon	Sandy Lake	11.55	GJ	5,983	311.4
J. L. Black	Grove City	8.56	R:GJ	6,224	309.0
Pew Estate	Mercer	17.20	GG	6,241	306.4
Alfred D. Ramsey	Volant	8.99	R:GJ	6,312	303.5
W. G. Montgomery	Grove City	13.17	R:GH	8,630	303.2

**Eleven months' record

MERCER COUNTY—(Mercer No. 3 Association)

Wilhelm Bros.	Sharon	16.80	R:GG:RJ	8,793	416.4
A. D. Willaman	Transfer	12.90	R:GJ	7,918	396.4
**Julius C. Christy	Sharon	16.79	Mixed	7,836	339.2
Mercer County Home	Mercer	35.40	R:GH	9,622	327.0
H. B. Edeburn	Mercer, R. 1	7.36	RG	6,745	321.6
W. H. Crawford	Mercer	24.40	Mixed	7,687	321.0
H. L. Moore	Sharpsville	18.22	GG:Mix	7,619	318.8
E. S. Reichard & Sons	Transfer	23.43	PJ	5,889	302.4
C. J. Kepner	Sharpsville	23.57	GG	6,267	300.5

**Ten months' record

McKEAN-ELK COUNTIES—(McKean-Elk Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
E. D. Comes & Sons	Smethport	22.72	RH:RJ	11,331	454.8
John Lewis	Ceres, N. Y.		R:GJ	8,086	396.1
Wahlberg Brothers	Kane	23.23	Mixed	8,544	325.6
H. J. Gregory	St. Marys	23.50	RH:Mix	8,269	321.1
Amandus Larson & Son	Ridgway	16.54	R:GH:Mix	8,307	308.9
O. L. Tubbs	Turtle Point	29.58	GH	9,945	306.7
Gustafson Brothers	Kane	16.03	R:GG:GH	7,586	302.0

MIFFLIN COUNTY—(Mifflin Association)

Malta Home Assn.	Granville	8.19	RH	12,846	428.5
H. H. Bradford	Lewistown	9.81	RH	11,984	419.5
Thomas J. Byler	Allensville	12.92	GH:Mix	11,127	417.4
Amos C. Yoder	Allenville	14.84	R:GG:GJ	8,104	403.7
C. William Bonson	Belleville	10.17	R:GH	10,382	370.1
John S. Mull	Lewistown	14.18	R:GH	9,130	342.9
S. C. Mitchell	Lewistown	14.78	R:GH	9,631	339.9
Edgar W. Fisher	Granville	11.14	R:GH	7,734	310.1

MONTGOMERY COUNTY—(Montgomery No. 1 Association)

C. J. Hedrick	Royersford	15.86	GH:Mix	8,455	330.7
Walter R. Hibbert, Jr.	Bryn Wawr	12.80	R:GG	6,528	305.5
H. D. Allebach	Trappe	17.55	RH	11,158	384.4
A. L. Bailey	Gladwyn	13.90	RJ	6,206	310.2
Shipley School Farm	Gladwyn	13.39	R:GG	6,839	366.0
Howard L. Baker	Center Square	20.08	RH	8,974	317.7
Silver Springs Farm	Norristown, R. D.	9.84	R:GG	7,746	367.3
Owen Gerhard	Palm	24.50	R:GH	9,443	329.0
Harvey Murphy	Norristown, R. 5	18.18	GH	9,862	375.6
S. C. Burton	Maple Glen	24.55	RG	7,077	347.0
Spring Del Farm	Fort Washington	9.33	RG	6,516	334.9
C. William Haywood	Ambler	21.02	RJ	5,381	302.2
Mrs. Howard Bieler	East Greenville	17.54	R:GH	9,234	321.3
Wayne Schultz	East Greenville	16.22	RH	11,018	379.4
Homer Schultz	Hereford	16.48	RH	9,415	342.2
C. E. Wismer	Trappe	65.10	R:GH:GJ	8,622	327.1
Gwynllan Farm	Gwynedd Valley	62.25	RG	7,696	374.7
Ursinus College	Collegeville	15.63	RH	9,778	358.4
Alvin Funk	Royersford, R. 1	20.37	R:GG	7,328	349.0
J. L. Wood & Sons	Red Hill	18.39	R:GH	8,848	311.4

MONTGOMERY COUNTY—(Montgomery No. 2 Association)

George A. Davis	Norristown, R. 1	22.00	RA	8,112	326.7
**Erdenheim Farm	Norristown, R. 4	13.01	RJ	6,632	352.1
Charles Shuman	Norristown, R. 4	12.71	R:GH	8,819	339.7
State Hospital	Norristown	40.87	R:GH	10,944	380.4
William Pratt, Ja.	Willow Grove	20.49	Mixed	8,403	320.1
David S. B. Chew	Radnor	13.77	Mixed	6,332	302.6
Carson College	Flourtown	12.87	Mixed	8,608	368.9
F. E. Dixon	Elkins Parks	23.59	RJ	5,968	318.3
Hugh A. Hamilton	Spring House	20.86	RJ	5,993	312.8
Normandy Farms	North Wales	29.45	RJ	6,702	356.6
Paul Brosz	Norristown, R. 3	83.98	RA	8,289	329.5
George Heuer	Fairview Village	46.43	R:GG:GH	7,425	327.4

NORTHUMBERLAND-SNYDER COUNTIES (Montgomery-Snyder Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Murray H. Dinius	Middleburg	10.67	R:GH	11,703	410.3
Alfred L. Revenolt	Turbetvills	6.19	R:GG	7,704	405.8
A. Woodward Stephens	Mooresburg	22.54	RH	10,861	399.4
Milford L. Revenolt	Turbetville	8.86	R:GG	7,407	366.0
W. C. Gauger	Watsontown	11.88	R:GH	10,001	329.6
State Colony	Selinsgrove	23.41	R:GH	9,407	328.3
Harry Klingler	Beaver Springs	7.79	RH	9,363	327.0
Clarence Bailey	Beavertown	8.77	GG	8,392	319.3
William L. Vincent	Danville	12.18	GG	7,006	319.2
Raymond J. Keefer	Watsontown	9.38	R:GG	6,452	315.6
H. J. Masters	Sunbury	37.62	R:GH	9,092	312.8
John E. Hackenburg	Middleburg	6.13	RA	7,769	308.1
E. D. Schnure	Milton	15.09	R:GH:GG	8,409	300.0

PERRY COUNTY—(Perry Association)

Jonathan R. Black	Millerstown	6.42	RH	11,365	423.2
George G. Beaver	Millerstown	17.10	R:PH	11,328	405.6
Ward R. Milligan	Loysville	12.93	R:GH	11,423	376.2
Hugh A. Loy	Loysville	9.81	R:GH	10,934	364.2
Howard W. Dromgold	New Bloomfield	16.00	R:GH	10,062	346.0
James S. Beaver	Millerstown	11.74	RH	9,692	344.1
H. N. Bernheisel	Green Park	11.08	RH	10,282	333.5
John K. Hall	Millerstown	9.30	R:GH	9,219	322.2

POTTER COUNTY—(Ulysses Association)

Lawrence E. Buck	Ulysses	24.05	RH	12,078	423.4
John Bauer	Emporium	18.96	RH	11,325	378.5
J. K. Martin	Galeton	13.28	R:GH	9,937	358.3
Charles W. Warriner	Harrison Valley	13.83	R H	9,915	337.0
Cyrus W. Rice	Coudersport	17.40	R:GG	8,090	315.8
Edward Kosa	Ulysses	11.83	R:GH	8,598	302.5

POTTER COUNTY—(Potter No. 2 Association)

Don Stearns	Coudersport	6.38	RH	9,769	315.8
Harry E. Jones	Shinglehouse	8.84	RH	8,810	310.9
L. C. Traub	Germania	9.13	Mixed	7,653	308.5

SCHUYLKILL COUNTY—(Schuylkill Association)

Edwin Schadle	Valley View	15.43	GH:GG	10,549	383.0
U. E. Rhein	Cressona	9.03	R:GJ	7,010	376.0
Arthur Heisler	Tamaque, R. 1	22.78	R:GH: Mixed	10,545	370.3
I. Earl Paxson	Schuylkill Haven	20.86	R:GH:GG	9,814	369.8
Roy Hunter	Ashland	19.56	R:GH:Mix	9,681	359.6
William Beuchley	Cressona	14.16	RJ	7,086	358.4
Robert Ludwig	Hegins	22.13	R:GH:GG	9,556	355.0
J. H. Zerbey	Pottsville	12.13	R:GJ	6,542	341.7
Guy S. Reed	Summit Station	20.89	R:GH:GG	9,061	340.9
Mrs. Maud Richards	Pottsville	11.55	RJ:GH	7,564	333.0
Schuylkill County Almshouse	Schuylkill Haven	31.50	R:GA	8,147	326.3

SOMERSET COUNTY—(Somerset Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Somerset Co. Home	Somerset	34.52	RH	11,378	377.3
O. W. Beachley	Somerset, R. 5	16.54	R:GH	10,245	369.1
Meyers Brothers	Meyersdale	17.30	R:BS	9,002	362.6
John E. Brant	Friedens, R. 1	24.33	Mixed	8,731	306.9
George D. Engle	Berlin, R. 2	15.93	Mixed	7,481	360.8
E. W. Hershberger	Johnstown, R. 1	11.98	R:G:BS	8,817	337.1

SULLIVAN COUNTY—(Western Sullivan Association)

B. C. Adams	Colley	8.49	GG	6,279	315.5
Fred Shaffer	Forksville	13.75	GH	7,650	315.9
Frank V. Rohe	Dushore	7.71	RH	10,245	325.5
Bernard Shaffer	Dushore	9.79	GG	7,531	331.1
Harland Baumunk	Forksville	10.19	GH:Mix	8,594	342.8
Thomas Doyle	Dushore	10.00	R:GH	9,224	343.3
Leitzelman Brothers	Dushore	13.01	R:GH	10,723	369.4

SUSQUEHANNA COUNTY—(Western Susquehanna No. 1 Assocaition

Fernheim Farm	Montrose	16.18	RA	7,944	342.5
Lathrop Farm	Montrose	30.98	RH	12,750	457.8
Floyd Hibbard	Springville	15.70	R:GH	11,810	394.9
Marvin Busch	Montrose	26.47	R:GH	9,812	331.4
Ross Carter	West Auburn	23.67	R:GH:Mix	7,023	318.0
Crystella Farm	Springville	26.73	R:GH:G	8,303	300.4
D. Fred Birchard	Birchardville	15.10	RJ	6,213	335.8
H. D. Griffis	Montrose	21.26	P:GH	9,898	350.0

SUSQUEHANNA COUNTY—(Western Susquehanna No. 2 Association)

F. R. Cope, Jr.	Dimock	20.51	RH	10,731	361.1
Raymond Strickland	Factoryville	14.87	R:GH	10,012	349.2
R. I. Springer	Factoryville	10.16	P:GH	9,152	318.9
Scott & Bush	Montrose	23.63	RH	9,344	314.6
Theron Cooley	Nicholson	21.19	R:GH	9,269	311.0
John Campbell	Conklin, N. Y.	31.61	P:GH	8,723	310.3
Robert Dedrick	Conklin, N. Y.	31.65	P:GH	9,571	309.6
Ray Walworth	New Milford	34.04	R:GH	8,679	307.2
G. C. Shaffer	Brackney	24.27	R:GH	8,518	304.1
G. C. Comstock, Jr.	Montrose	15.52	R:GG	6,300	300.0

SUSQUEHANNA COUNTY—(Choconut Association)

Thomas Patton	Vestal, N. Y.	20.85	GH	9,357	347.8

SUSQUEHANNA COUNTY—(Gelatt-South Gibson Association)

Cordie Allen	Nicholson	13.50	RH	14,453	485.3
Curtis Allen	Nicholson	20.51	RH	11,560	401.6
Wilmot Bros.	Jermyn	24.00	R:GH	9,256	343.2
Everett Lee	Carbondale	14.87	R:GH	8,848	310.7
C. W. Ross	Nicholson	16.58	R:GJ	6,508	303.7

TIOGA COUNTY—(Mansfield Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Ray Woodward	Mansfield	12.38	GH	11,568	423.3
Olen Jackson	Mainesburg	11.00	RH	9,880	345.0
J. H. Inscho	Mansfield	15.90	R H	10,204	339.0
Manaholm Farms	Covington	17.79	R:GH	10,494	370.3
J. P. Ripley	Troy	13.38	RJ	5,858	329.5
Ernest Bolt	Covington	18.80	R:GH	8,266	306.5
East Brook Farms	Covington	13.15	RH	9,565	336.8
J. W. Sherman & Son	Mansfield	15.83	RH	9,038	323.9
Roy Lee	Covington	15.18	GH	8,726	308.0
R. M. Broderick & Son	Mansfield	25.54	RJ	6,603	366.3

TIOGA COUNTY—(Susquehanna Trail Association)

Albert Norman	Liberty	13.70	RJ	7,529	384.5
Dan Bunnell	Liberty	14.51	P.GJ	7,331	363.7
Harry Mase & Son	Liberty	22.16	R:GH:Mix	9,025	335.8
Charles H. Mase	Liberty	15.31	R:GH:Mix	7,923	331.1
S. P. Schneider	Lloyd	8.15	R:GH:J	8,579	322.8
Edward W. Brion	Liberty	11.93	R:GJ:Mix	7,077	300.9

TIOGA COUNTY—(Jackson Association)

E. N. Garrison	Millerton	10.90	RJ	8,623	481.4
L. R. Tillinghast	Gillett	16.93	RJ	11,356	389.2
W. W. Deming	Millerton	21.01	RJ	7,040	372.0
Dan Bly	Pine City, N. Y.	10.66	RJ	6,916	365.8
E. B. Spencer & Son	Millerton	27.08	RH	10,247	358.3
Fred Tillinghast	Gillett	15.25	RJ	6,758	356.3
Frank Bly	Pine City, N. Y.	12.26	RJ	6,618	346.2
William A. Segar	Rutland	12.61	R:GH	8,676	326.6
L. R. Stevens	Millerton	23.97	R:GH	9,478	324.3
W. E. Garrison	Millerton	19.10	R:GG	6,456	323.8
Ford Smith	Millerton	14.07	GJ	5,888	316.5
Noel Card	Lawrenceville	15.71	RJ	6,052	316.4
Victor H. Hurd	Millerton	20.85	Mixed	6,787	314.2
Ford Smith	Millerton	13.64	R:GJ	5,995	307.3
A. D. Prutsman	Millerton	24.76	RH	8,550	304.5

TIOGA COUNTY—(Wellsboro Association)

George B. Butler	Wellsbore	15.32	R:GG	8,015	390.7
Clark Bowen	Wellsboro	10.59	RH	11,248	371.4
Williom A. Stevens	Wellsboro	10.01	RH	11,084	367.0
Roy S. Bowen	Wellsboro	9.04	RH	10,524	345.4
Ralph Sampson	Crooked Creek	17.26	R:GH	9,205	304.3

UNION COUNTY—(Buffalo Valley No. 1 Association)

A. C. Slifer	Lewisburg, R. 3	8.59	RH	13,638	477.9
W. S. Erdley	Lewisburg, R. 1	10.67	RH	12,718	449.0
C. E. Erdley	Lewisburg, R. 1	20.54	RH	12,476	427.4
Carrie Lincoln	Laurelton	10.23	RH:Mix	11,637	416.6
Fred D. Dock	Lewisburg, R. 1	11.81	RH	12,040	416.4
W. J. Erdley	Mifflinburg, R. 3	9.59	RH	11,305	396.9
H. A. Walter	Lewisburg, R. 1	12.58	R:GH	10,943	380.6
John S. Wehr	Mifflinburg, R. 3	10.63	RH	11,026	370.4

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Evangelical Home	Lewisburg	15.89	RG	6,887	358.1
J. S. Hackenberg	Lewisburg, R. 3	11.42	RH	10,404	353.5
J. M. Erdley	Lewisburg, R. 1	14.45	R:GH	9,867	350.9
J. A. Rousch	Winfield	13.72	R:GH	9,842	342.2
Oscar Brouse	Mifflinburg, R. 1	9.30	R:BS	8,460	339.1
H. H. Moll	Millmont	11.49	R:GH:GG	8,824	338.2
J. S. Zeigler	Lewisburg, R. 4	28.92	RH	9,385	335.2
H. K. Benner	Vicksburg	10.34	R:GH	9,656	332.0
David E. Voneida	Lewisburg, R. 1	13.52	R:BS	9,010	312.0
R. E. Musser	Lewisburg, R. 3	14.29	R:PH	9,138	308.1

UNION COUNTY—(Buffalo Valley No. 2 Association)

W. H. Sauers	Lewisburg, R. 2	14.33	R:GH	13,725	526.0
S. V. Laurelton	Laurelton	36.42	GH	12,046	424.1
Robert J. Smith	Millmont, R. 2	7.45	R:GH	12,512	423.4
W. J. Leinbach	Vicksburg	6.87	R:GH	10,450	381.0
L. A. Troxell	New Columbia	10.05	R:GH	11,143	375.3
F. B. Snyder	Millmont	7.00	R:GH	10,310	360.5
J. D. Shreck	Lewisburg, R. 4	9.89	R:GH	9,565	354.3
Calvin Stahl Estate	Lewisburg, R. 1	10.13	RH	10,578	344.4
Cloyd Yost	Lewisburg, R. 2	15.46	R:GH	9,781	332.3
J. Ray Keiser	West Milton	14.98	R:GG:RH	7,803	323.1
John Grubb	Mifflinburg, R. 1	14.21	R:GH	9,124	322.2
H. B. Clouser	White Deer	10.59	GH:GJ	8,506	317.3

VENANGO COUNTY—(Venango Association)

Polk State School	Polk	143.70	RH	13,337	443.4
Lee J. Hancox	Titusville, R. 4	10.38	Mixed: R:GG	10,764	443.0
J. D. Jack	Emlenotn, R. 2	8.32	R:GG	7,594	381.1
E. W. Shaffer	Titusville, R. 5	14.71	R:PG:G	7,576	378.8
I. S. August	Diamond, R. 1	12.80	RJ	6,264	366.5
Dr. G. F. Boal	Cooperstown	8.86	PB:GJ	7,227	358.8
Homer J. Moore	Franklin, Gen. D.	10.47	RJ	6,977	352.4
John L. Mitchell	Oil City, R. 1	9.33	R:GG	6,995	345.4
Plumer Dairy Co.	Oil City, R. 2	28.98	Mixed	8,055	323.0
D. H. Morrison	Van	11.08	RG	6,601	317.9
McCoy Bros. & Co.	Emlenton, R. 5	17.57	RJ	5,962	308.9
R. W. Strawbridge	Diamond, R. 2	9.09	RJ	6,032	307.8

WARREN COUNTY—(Warren Association)

A. R. Probst	Clarendon	8.37	RG	8,089	347.1
King Brothers	Akeley	7.47	RH	10,496	366.9
A. T. Tutmaher	Chandlers Valley	10.72	RH:GG	8,452	320.4
State Hospital	Warren	93.39	R:GH	11,872	394.7
Rouse Hospital	Youngsville	32.17	R:GH	10,025	335.7
Frank Lounsbury	Russell	9.00	R:PG	5,824	311.8
F. W. Fladry	Warren, R. 2	20.03	R:GH:Mix	8,551	310.6
Crary Farms	Sheffield	20.44	RH	9,328	326.6
Ward R. Weiler	Warren, R. 2	21.07	R:PH	9,213	321.9

WASHINGTON COUNTY—(Washington Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Hillsview Sanitarium	Washington	11.65	RJ	9,549	482.5
Alex. Hamilton & Sons	Washington, R. 7	17.09	R:GG	7,923	393.2
Penna. Training School	Morganza	43.69	R:GH:RJ	10,480	390.9
P. F. Morris	Charleroi	14.45	RJ	7,773	374.1
V. C. McCracken	Charleroi, R. D.	11.93	R:GJ	6,331	341.9
A. H. Engel	Canonsburg, R. D.	15.68	RH	9,576	328.1
Mrs. Jane Elliott	W. Brownsville	17.83	GG:Mix	7,308	313.1
D. L. Post	Dunns Station, R. 3	31.19	R:GJ	5,776	312.5
T. C. Pepper	Fredericktown	15.87	R:GH: R:GG	8,431	308.7
Lawrence McIlvaine	Bentleyville	10.22	R:GG	5,842	301.9
J. A. Dinsmore	Washington, R. 3	32.19	PJ	5,923	300.9

WAYNE COUNTY—(Preston Association)

Jay Decker	Preston Park	37.34	R:GH	10,322	369.2
I. R. Doyle	Poyntelle	13.60	R:GH	8,709	319.8
Fred C. Erk	Starrucca	30.64	RH	9,784	313.5

WAYNE COUNTY—(Lake Ariel Association)

John Swingle	Lake Ariel, R. 2	9.57	R:GH: Mix	11,900	463.9
Ray Frieble	Greentown	8.33	R:GH	10,680	395.5
John Simpson	Lake Ariel	15.37	RH:GG	10,096	383.6
Jesse Miller	Waymart	15.55	RH	11,365	367.0
John Cobb	Lake Ariel	17.10	GG:GJ	7,408	349.5
Wm. H. Osborne	South Sterling	8.14	R:GG:Mix	8,325	339.5
Stanley Bagnick	Waymart	16.73	GG: R:GJR:	6,835	335.9
Marvin Enslin	Waymart	19.52	GH	7,453	315.7

WAYNE COUNTY—(Wayne Association)

Fairview Hospital	Waymart	26.00	RH:GG	9,746	402.8
H. A. Robinson	Seelyville	9.37	RJ	7,612	399.0
R. G. Erk	Prompton	32.11	RJ	7,392	366.0
E. H. Blake	Prompton	29.25	RH	10,065	340.2
B. F. Kennedy	Pleasant Mount	25.13	GH	9,848	334.0
Chester Rickard	Honesdale	16.26	R:GH:Mix	9,040	332.9
W. F. Hauenstein	Waymart	23.43	RJ	6,648	332.4
Edward Erk	Seelyville	26.35	RJ	5,643	318.1
E. E. Kinsman	Honesdale	26.45	R:PH	8,511	302.8

WAYNE COUNTY—(Damascus Association)

George Rutledge	Galilee	23.80	GH:Mix	7,739	310.1
Walter Blum	Milanville	20.12	RH	10,511	359.0
Sid Woodley	Narrowsburg, N. Y.	21.05	G:GH	9,890	315.6
W. J. Robbins	Beach Lake	21.60	RH	9,046	306.8
T. H. Olver	Honesdale	20.84	R:GH	9,782	318.1
Blackwell Brothers	Damascus	12.91	RH	11,149	379.9
C. E. Canfield	Damascus	15.00	R:GH	9,491	316.3

WYOMING COUNTY—(Mehoopany Association)

A. S. Hallock	Laceyville	9.29	RH	12,766	446.6
Howard Brunges	Tunkhannock	36.85	R:GJ	7,927	348.8
H. & C. Love	N. Mehoopany	18.46	R:GG	6,998	336.2

WESTMORELAND COUNTY—(Westmoreland No. 1 Association)

NAME	ADDRESS	AVE. No. COWS	BREED	LBS. MILK	LBS. FAT
Joseph Kim	Larimer	13.17	Mixed	10,055	390.6
F. M. Kintigh	Irwin, R. 2	11.13	Mixed	8,852	382.0
John Moffat	New Alexandria	15.81	R:GG: R:GH	8,376	367.8
I. C. Wohlwend	Salina	11.88	R:SW	8,749	367.1
St. Vincents Archabbey	Latrobe	61.85	R:GH	10,475	350.0
J. C. Gaut	Alverton	17.41	R:GH:GG	9,016	324.7
J. M. & C. A. Lemon	Saltsburg	22.42	GH	9,124	326.1
R. C. Lemon & Son	Saltsburg	8.84	R:GH	8,960	315.9

WESTMORELAND COUNTY—(Westmoreland No. 2 Association)

Westm'd Co. Home	Greensburg	25.94	RH	13,577	480.8
Rolling Rock Farms	Laughlinstown	6.62	R:SW	9,412	374.5
E. G. Summy	Mt. Pleasant, R. 1	18.73	R:GH	10,262	361.7
J. E. Wineman	Youngwood	16.70	RH:Mix	9,783	360.0
S. W. Heath	Belle Vernon	18.82	R:GG	6,921	335.8
G. R. Funk	Hunkers	20.00	R:GH	9,550	333.5
J. C. Gongaware	Greensburg, R. 2	22.76	R:GG:Mix	7,693	329.0
Hungarian Orph. Home	Ligonier	10.01	R:GH:GG	8,346	326.6
Seton Hill College	Greensburg	20.64	R:GH	9,577	319.7

YORK COUNTY—(Northern York Association)

Geo. B. Livingston Est.	East Berlin, R. 1	11.33	R:GH	11,758	423.4
J. J. Hamme	Abbotstown	13.68	RG	8,087	380.4
Haines Acres (Mahlon N. Haines)	York, R. 7 Hellam, R. 1	38.12 25.68	R:GH:G R:GH:J	9,650 8,889	373.0 370.8
H. M. & M. B. Emig	Dallastown, R. 1	19.70	R:GG:H	7,895	369.9
Frank L. Krall & Son	East Berlin, R. 1	26.13	RH:GG	10,574	368.4
Urias Innerst & Sons	Dallastown, R. 1	20.48	H:Mixed	10,290	364.3
William F. Dummer	Mt. Wolf, R. 1	10.97	GH:G	10,316	363.9
Mrs. S. F. Raab & Son	Dallstown, R. 1	15.85	R:GH	9,686	349.7
D. D. Hoover	Wellsville	7.80	R:GH	10,732	345.1
J. Raymond Arnold	Hellam, R. 1	38.72	R:GG	7,337	341.2
C. Allen May	York, R. 5	21.76	RG	6,976	331.1
John B. Seitz	Camp Hill, R. 1	18.29	R:GG	6,285	311.2
Charles A. Schaefer	York, 124 W. Market	11.35	RG	6,049	305.5
Maurice A. Hutton	Etters, R. 1	6.49	R:GH	8,889	303.1
*M. M. Livingston	East Berlin, R. 1	6.73	R:GH:GG	7,895	301.9

*Eleven months.

YORK COUNTY—(Southern York Association)

S. F. Laucks (Lauxmont Farm)	Wrightsville	29.77	RH:J	13,045	480.2
S. F. Laucks (Springdale Farm)	York, R. 4	8.88	RH:J	11,927	433.9
J. B. Fishel	York	16.90	RA	9,421	393.0
W. M. Carico	Delta	20.70	Mixed	9,040	380.9
W. R. Brown	Delta	22.00	RH:J	9,555	361.6
W. S. Grimm	Red Lion	47.80	RH	9,867	348.2
Dale D. Kilgore	Woodbine	12.42	R:GG:H	7,597	342.4
H. G. Hall	Stewartstown	23.62	Mixed	8,798	340.8
H. J. Handley & Son	Delta	19.04	RBS:Mix	8,101	338.4
Stiles & Lentz	Seven Valleys	7.52	RG	6,633	328.2
W. J. Parlett	Woodbine	8.14	Mixed	8,233	326.1
Emory M. Kilgore	Woodbine	12.25	R:GG	6,724	314.8
C. J. Taylor	Dallastown	14.30	PGG:Mix	6,776	310.9
C. L. Eisenhart	York, R. 4	39.07	R:GH:R: GG	7,912	306.0

LIST OF MEMBERS WHO PAID THEIR DUES IN 1933

Harold T. Allebach, Trappe, Pa.—Montgomery
Curtis Allen, Nicholson, Pa., R. 3—Wyoming
A. Anderson & Son, Ridgway, Pa.—Elk
Harry C. Anspach, Jonestown, Pa., R. 2—Lebanon
Miss Caroline Archer, Reading, Pa., R. 1—Berks
Harry Arnold, Beaver Falls, Pa., R. 4—Beaver
J. R. Arnold, Hellam, Pa., R. 1—York
Raymond B. Arnold, Milan, Pa.—Bradford
Robert L. Arnold, Lakewood, Pa.—Wayne
Cloyd Bagshaw, Hollidaysburg, Pa., R. 2—Blair
K. S. Bagshaw, Hollidaysburg, Pa., R. 2—Blair
Howard Baker, Center Square, Pa.—Montgomery
John E. Baker, Agri. Extension Office, Franklin, Pa.—Venango
Ben Ballard, Troy, Pa.—Bradford
Wilbur F. Barkdoll, Mont Alto, Pa.—Franklin
Roy T. Barnhart, Wernersville, Pa.—Berks
John Bauer, Emporium, Pa.—Cambria
A. L. Beam, Dairy Building, State College, Pa.—Centre
Wilbur Beatty, 60 Bank & Trust Building Greensburg, Pa.—Westmoreland
George G. Beaver, Millerstown, Pa.—Perry
James S. Beaver, Sr., Millerstown, Pa.—Perry
E. P. Bechtel, 94 Greenwood Ave., Trappe, Pa.—Montgomery
S. C. Beeman, Sewickley, Pa.—Jefferson
John A. Bell, Jr., Sewickley, Pa.—Allegheny
Charles D. Bender, Bernville, Pa., R. D.—Berks
J. H. Bennetch, Sheridan, Pa.—Lebanon
A. C. Berger, Lebanon, Pa.—Lebanon
H. N. Bernheisel, Green Park, Pa.—Perry
Bethany-Homestead Farms, Honesdale, Pa.—Wayne
Bethany Orphan's Home, Womelsdorf, Pa.—Berks
Dr. C. P. Bishop, 1906 Mulberry St., Harrisburg, Pa.—Dauphin
J. A. Boak & Sons, New Castle, Pa., R. 4—Lawrence
H. O. Boak, McDonald, Pa., R. 2—Washington
G. A. Boger, Bethlehem, Pa., R. 4—Northumberland
A. A. Borland, 58 Dairy Building, State College, Pa.—Centre
Roy S. Bowen, Wellsboro, Pa.—Tioga
R. R. Bowman, Harrisburg, Pa., Box 561—Dauphin
John S. Brandt, Dallastown, Pa.—York
I. W. Brendle, East Brendle, East Earl, Pa., R. 1—Lancaster
J. H. Brinton, Gap, Pa.—Lancaster
R. F. Brinton, West Chester, Pa.—Chester
Oscar Brouse, Mifflinburg, Pa.—Union
Ray F. Brown, Mill Creek, Pa., R. "S"—Huntingdon
Ammon G. Brubaker, Myerstown, Pa.—Lebanon
M. V. Brubaker, New Holland, Pa., R. 2—Lancaster
Warren Bucher, Municipal Building, Harrisburg, Pa.—Dauphin
Lawrence E. Buck, Ulysses, Pa.—Potter
John Burket, Tyrone, Pa., R. 1—Blair
Benjamin Bushong, Columbia, Pa., R. 2—Lancaster
Samuel E. Bushong, Lititz, Pa., R.4—Lancaster
D. R. Butler, Knoxville, Pa., R. 2—Tioga
George B. Butler, Wellsboro, Pa., R. 4—Tioga
Fred Campbell, Wyalusing, Pa., R. 5—Bradford
J. S. Campbell, Jr., Butler, Pa.—Butler

Leroy Campbell, Grove City, Pa., R. 5—Mercer
W. G. Campbell, Armagh, Pa.—Indiana
Joseph O. Canby, Hulmeville, Pa.—Bucks
C. S. Chaffee, Ulster, Pa.—Bradford
George Clark, Jr., Shamokin, Pa.—Northumberland
R. S. Clark, Court House, Huntingdon, Pa.—Huntingdon
J. H. Cliffe, Ivyland, Pa.—Bucks
John Cobb, Lake Ariel, Pa., R. 1—Wayne
C. I. Cohee, Dean & New Streets, West Chester, Pa.—Chester
Floyd L. Cole, 125 Chestnut Street, Mifflinburg, Pa.—Union
Eseck D. Comes, Smethport, Pa.—McKean
Charles E. Cowan, 376 E. Main Street, New Holland, Pa.—Lancaster
Frederick W. Coxe, Everett, Pa.—Bedford
Albert B. Craig, Sewickley, Pa.—Allegheny
L. E. Craumer, Lewisburg, Pa.—Union
W. H. Crawford, Mercer, Pa.—Mercer
Albert J. Crowl, Guys Mills, Pa., Box 56—Crawford
C. B. Culver, Laceyville, Pa., R. 1—Wyoming
Norman Dale, Montrose, Pa.—Susquehanna
Dauphin County Home, Harrisburg, Pa., R. 2—Dauphin
George A. Davis, Burnside Avenue., Norristown, Pa.—Montgomery
James F. Dayhoff, Waynesboro, Pa.—Franklin
Deleware County Home, Lima, Pa.—Delaware
J. M. Delozier, Hollidaysburg, Pa.—Blair
H. E. Denison, East Lansing, Michigan—Michigan, Ill
E. S. Deubler, Narberth, Pa.—Montgomery
Dr. G. A. Dick, 39th & Woodland, Philadelphia, Pa.—Philadelphia
C. G. Dietrick, Bolton Farms, Bristol, Pa.—Bucks
John Dietz(Schuylkill Haven, Pa.—Schuylkill
William Ditto, Agri. Extension Office, Somerset, Pa.—Somerset
Paul Dorr, Ulster, Pa., Box 191—Bradford
W. R. Downs, Jersey Shore, Pa.—Lycoming
M. A. Drayer, State Hospital, Allentown, Pa.—Lehigh
Lewis Duerr, Jr., Langhorne, Pa., R. 1—Bucks
T. S. Dunn, Coudersport, Pa.—Potter
E. C. Dunning, 622 Montgomery Ave., Chambersburg, Pa.—Franklin
Port Eckles, Homestead, Pa.—Allegheny
William J. Erdley, Mifflinburg, Pa.—Union
A. H. Erdman, Elizabethville, Pa.—Dauphin
E. E. Erdman, Hershey, Pa., Box 5—Dauphin
Clifton Erway, Canton, Pa.—Bradford
Adam D. Farig, Riviera Farm, Reading, Pa., R. 2—Berks
Norman C. Farlow, Oak St., Irwin, Pa.—Westmoreland
Hugh Fergus, Slippery Rock, Pa., R. 4—Butler
Frank W. Fernsler, Lebanon, Pa., R. 1—Lebanon
Carlton Ferris, Montrose, Pa.—Susquehanna
J. Gordon Fetterman, Media, Pa., R. 1—Delaware
E. B. Fitts, Dairy Building, State College, Pa.—Centre
Mrs. Mary Folwell, Newark, Pa., R. 2—Delaware
Harry S. Forney, Palmyra, Pa., R. 2—Lebanon
A. W. Fox, Dairy Council, Century Bldg., Pittsburgh, Pa.—Allegheny
Fox Chase Farms, Towanda, Pa.—Bradford
B. Scott Fritz, Strasburg, Pa.—Lancaster
A. S. Frommeyer, City Hall, Harrisburg, Pa.—Dauphin
J. M. Fry, State College, Pa.—Centre
W. P. Fusselbaugh, Harbison Dairies, Front and Diamond, Philadelphia, Pa.—Philadelphia
Carey C. Garey, Farm Hill Dairy, Sewickley, Pa.—Allegheny
H. S. Gatchell, Peach Bottom, Pa.—Lancaster
William S. Gatshall, Norristown, Pa.—Montgomery

George G. Gault, Dawson, Pa.—Fayette
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